

# THE ARCHITECTURAL MAGAZINE.

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MARCH, 1838.

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## ORIGINAL COMMUNICATIONS.

ART. I. *The Poetry of Architecture.* By KATA PHUSIN.

No. 2. THE COTTAGE — continued.

IV. *The Mountain Cottage. — Westmoreland.*

WHEN I devoted so much time to the consideration of the peculiarities of the Swiss cottage, I did not previously endeavour to ascertain what the mind, influenced by the feelings excited by the nature of its situation, would be induced to expect, or disposed to admire. I thus deviated from the general rule which I hope to be able to follow out; but I did so only because the subject of consideration was incapable of fulfilling the expectation when excited, or corresponding with the conception when formed. But now, in order to appreciate the beauty of the Westmoreland cottage, it will be necessary to fix upon a standard of excellence, with which it may be compared.

One of the principal charms of mountain scenery is its solitude. Now, just as silence is never perfect or deep without motion, solitude is never perfect without some vestige of life. Even desolation is not felt to be utter, unless in some slight degree interrupted: unless the cricket is chirping on the lonely hearth, or the vulture soaring over the field of corpses, or the one mourner lamenting over the red ruins of the devastated village, that devastation is not felt to be complete. The anathema of the prophet does not wholly leave the curse of loneliness upon the mighty city, until he tells us that "the satyr shall dance there." And, if desolation, which is the destruction of life, cannot leave its impression perfect without some interruption, much less can solitude, which is only the absence of life, be felt without some contrast. Accordingly, it is, perhaps, never so perfect as when a populous and highly cultivated plain, immediately beneath, is visible through the rugged ravines, or over the cloudy summits of some tall, vast, and voiceless mountain. When such a prospect is not attainable, one of the chief uses of the mountain cottage, paradoxical as the idea may appear, is to increase this sense of solitude. Now, as it will only do so when it is seen at a considerable distance, it is necessary that it should be visible, or, at least, that its presence should be indicated, over a con-

siderable portion of surrounding space. It must not, therefore, be too much shaded with trees, or it will be useless; but if, on the contrary, it be too conspicuous on the open hill side, it will be liable to most of the objections which were advanced against the Swiss cottage, and to another, which was not then noticed. Anything which, to the eye, is split into parts, appears less as a whole than what is undivided. Now, a considerable mass, of whatever tone or colour it may consist, is as easily divisible by dots as by lines; that is, a conspicuous point, on any part of its surface, will divide it into two portions, each of which will be individually measured by the eye, but which will never make the impression which they would have made, had their unity not been interrupted. A conspicuous cottage on a distant mountain side has this effect in a fatal degree, and is, therefore, always intolerable. It should accordingly, in order to reconcile the attainment of the good, with the avoidance of the evil, be barely visible: it should not tell as a cottage on the eye, though it should on the mind; for be it observed that, if it is only by the closest investigation that we can ascertain it to be a human habitation, it will answer the purpose of increasing the solitude quite as well as if it were evidently so; because this impression is produced by its appeal to the thoughts, not by its effect on the eye. Its colour, therefore, should be as nearly as possible that of the hill on which, or the crag beneath which, it is placed: its form, one that will incorporate well with the ground, and approach that of a large stone more than of anything else. The colour will consequently, if this rule be followed, be subdued and greyish, but rather warm; and the form simple, graceful, and unpretending. The building should retain the same general character on a closer examination. Every thing about it should be natural, and should appear as if the influences and forces which were in operation around it had been too strong to be resisted, and had rendered all efforts of art to check their power, or conceal the evidence of their action, entirely unavailing. It cannot but be an alien child of the mountains; but it must show that it has been adopted and cherished by them. This effect is only attainable by great ease of outline and variety of colour; peculiarities which, as will be presently seen, the Westmoreland cottage possesses in a super-eminent degree.

Another feeling, with which one is impressed during a mountain ramble, is humility. I found fault with the insignificance of the Swiss cottage, because "it was not content to sink into a quiet corner, and personify humility." Now, had it not been seen to be pretending, it would not have been felt to be insignificant; for the feelings would have been gratified with its sub-

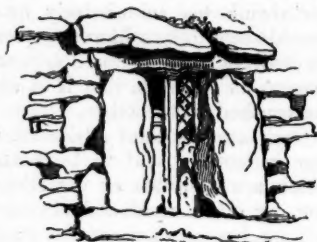
mission to, and retirement from, the majesty of the destructive influences which it rather seemed to rise up against in mockery. Such pretension is especially to be avoided in the mountain cottage: it can never lie too humbly in the pastures of the valley, nor shrink too submissively into the hollows of the hills; it should seem to be asking the storm for mercy, and the mountain for protection; and should appear to owe to its weakness, rather than to its strength, that it is neither overwhelmed by the one, nor crushed by the other.

Such are the chief attributes, without which a mountain cottage cannot be said to be beautiful. It may possess others, which are desirable or objectionable, according to their situation, or other accidental circumstances. The nature of these will be best understood by examining an individual building. The material is, of course, what is most easily attainable and available without much labour. The Cumberland and Westmoreland hills are, in general, composed of clay-slate and greywacke, with occasional masses of chert (like that which forms the summit of Scawfell), porphyritic greenstone, and syenite. The chert decomposes deeply, and assumes a rough, brown, granular surface, deeply worn and furrowed. The clay-slate and greywacke, as it is shattered by frost, and carried down by the torrents, of course forms itself into irregular flattish masses. The splintery edges of these are in some degree worn off by the action of water; and, slight decomposition taking place on the surface of the clay-slate furnishes an aluminous soil, which is immediately taken advantage of by innumerable lichens, which change the dark grey of the original substance into an infinite variety of pale and warm colours. These stones, thus shaped to his hand, are the most convenient building materials the peasant can obtain. He lays his foundation and strengthens his angles with large masses, filling up the intervals with pieces of a more moderate size; and using here and there a little cement to bind the whole together, and to keep the wind from getting through the interstices; but never enough to fill them altogether up, or to render the face of the wall smooth. At intervals of from 4ft. to 6ft. a horizontal line of flat and broad fragments is introduced projecting about a foot from the wall. Whether this is supposed to give strength, I know not; but, as it is invariably covered by luxuriant stonecrop, it is always a delightful object.

The door is flanked and roofed by three large oblong sheets of grey rock, whose form seems not to be considered of the slightest consequence. Those which form the cheeks of the window (*fig. 39.*) are generally selected with more care from the debris of some rock, which is naturally smooth and polished, after being subjected to the weather, such as granite or syenite.

The window itself is narrow and deep set: in the better sort of cottages, latticed, but with no affectation of sweetbriar or eglantine about it. It may be observed of the whole of the cottage, that, though all is beautiful, nothing is pretty. The roof is rather flat, and covered with heavy fragments of the stone of which the walls are built, originally very loose; but generally cemented by accumulated soil, and bound together by houseleek, moss, and stonecrop: brilliant in colour, and singular in abundance.

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The form of the larger cottages, being frequently that of a cross, would hurt the eye by the sharp angles of the roof, were it not for the cushion-like vegetation with which they are rounded and concealed. Varieties of the fern sometimes relieve the massy forms of the stonecrop, with their light and delicate leafage. Windows in the roof are seldom met with. Of the chimney I shall speak hereafter.

Such are the prevailing peculiarities of the Westmoreland cottage. "Is this all?" some one will exclaim: "a hovel, built of what first comes to hand, and in the most simple and convenient form; not one thought of architectural beauty ever coming into the builder's head!" Even so, to this illustration of an excellent rule, I wished particularly to direct attention; that the material which Nature furnishes, in any given country, and the form which she suggests, will always render the building the most beautiful, because the most appropriate. Observe how perfectly this cottage fulfils the conditions which were before ascertained to be necessary to perfection. Its colour is that of the ground on which it stands, always subdued and grey, but exquisitely rich, the colour being disposed crumblingly, in groups of shadowy spots; a deep red brown, passing into black, being finely contrasted with the pale yellow of the *Lichen geographicus*, and the subdued white of another lichen, whose name I do not know; all mingling with each other as on a native rock, and with the same beautiful effect: the mass, consequently, at a distance, tells only as a large stone would, the simplicity of its form contributing still farther to render it inconspicuous. When placed on a mountain side, such a cottage will become a point of interest, which will relieve its monotony, but will never cut the hill in two, or take away from its size. In the valley, the colour of these cottages agrees with every thing: the green



light, which trembles through the leafage of the taller trees, falls with exquisite effect on the rich grey of the ancient roofs; the deep pool of clear water is not startled from its peace by their reflection; the ivy or the creepers, to which the superior wealth of the peasant of the valley does now and then pretend, in opposition to the general custom, cling gracefully and easily to its innumerable crevices; and rock, lake, and meadow seem to hail it with a brotherly affection, as if Nature had taken as much pains with it as she has with them.

Again, observe its ease of outline. There is not a single straight line to be met with from foundation to roof, all is bending or broken. The form of every stone in its walls is a study; for, owing to the infinite delicacy of structure in all minerals, a piece of stone 3 in. in diameter, irregularly fractured, and a little worn by the weather, has precisely the same character of outline which we should find and admire in a mountain of the same material 6000 ft. high; and, therefore, the eye, though not feeling the cause, rests on every cranny, and crack, and fissure with delight. It is true that we have no idea that every small projection, if of chert, has such an outline as Scawfell's; if of greywacke, as Skiddaw's; or if of slate, as Helvellyn's; but their combinations of form are, nevertheless, felt to be exquisite, and we dwell upon every bend of the rough roof, and every hollow of the loose wall, feeling it to be a design which no architect on earth could ever equal, sculptured by a chisel of unimaginable delicacy, and finished to a degree of perfection, which is unnoticed only because it is everywhere.

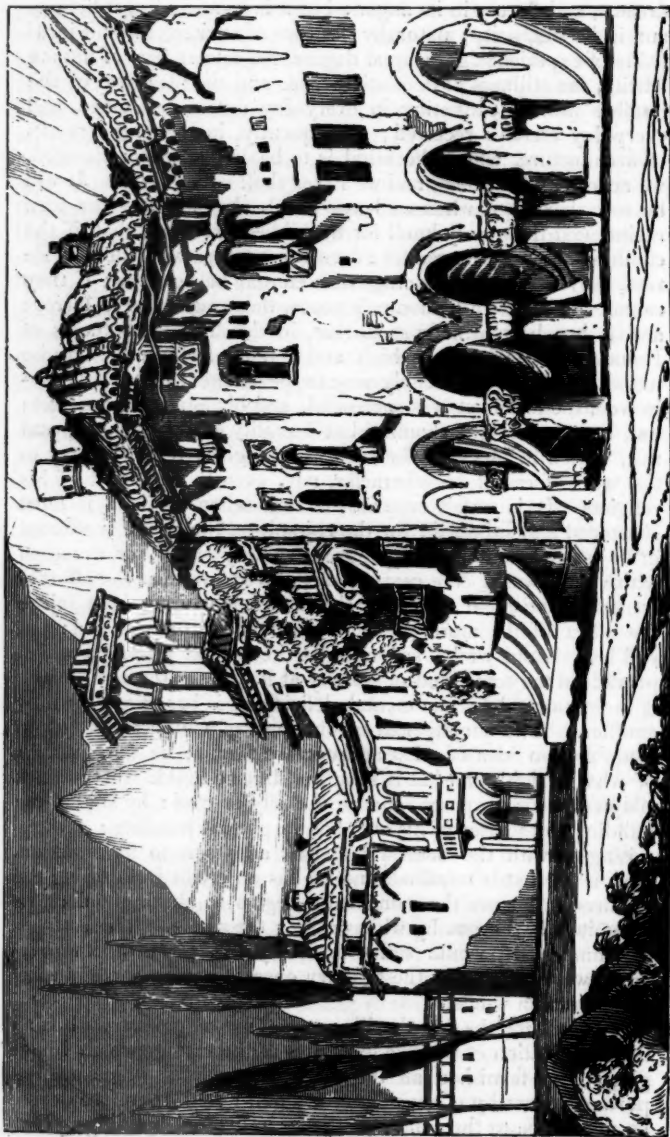
This ease and irregularity is peculiarly delightful here gracefulness and freedom of outline and detail are, as they always are in mountain countries, the chief characteristics of every scene. It is well that, where every plant is wild and every torrent free, every field irregular in its form, every knoll various in its outline, one is not startled by well-built walls, or unyielding roofs, but is permitted to trace in the stones of the peasant's dwelling, as in the crags of the mountain side, no evidence of the line or the mallet, but the operation of eternal influences, the presence of an Almighty hand. Another perfection connected with its ease of outline is, its severity of character: there is no foppery about it; not the slightest effort at any kind of ornament, but what nature chooses to bestow; it wears all its decorations wildly, covering its nakedness, not with what the peasant may plant, but with what the winds may bring. There is no gay colour or neatness about it; no green shutters or other abomination: all is calm and quiet, and severe, as the mind of a philosopher, and, withal, a little sombre. It is evidently old, and has stood many trials in its day; and the snow, and the tem-

pest, and the torrent, have all spared it, and left it in its peace, with its grey head unbowed, and its early strength unbroken, even though the spirit of decay seems creeping, like the moss and the lichen, through the darkness of its crannies. This venerable and slightly melancholy character is the very soul of all its beauty.

There remains only one point to be noticed, its humility. This was before stated to be desirable, and it will here be found in perfection. The building draws as little attention upon itself as possible; since, with all the praise I have bestowed upon it, it possesses not one point of beauty in which it is not equalled or excelled by every stone at the side of the road. It is small in size, simple in form, subdued in tone, easily concealed or overshadowed; often actually so; and one is always delighted and surprised to find that what courts attention so little is capable of sustaining it so well. Yet it has no appearance of weakness: it is stoutly, though rudely, built; and one ceases to fear for its sake the violence of surrounding agencies, which, it may be seen, will be partly resisted by its strength, and which we feel will be partly deprecated by its humility. Such is the mountain cottage of Westmoreland; and such, with occasional varieties, are many of the mountain cottages of England and Wales. It is true that my memory rests with peculiar pleasure in a certain quiet valley near Kirkstone, little known to the general tourist, distant from any public track, and, therefore, free from all the horrors of improvement; in which it seemed to me that the architecture of the cottage had attained a peculiar degree of perfection. But I think that this impression was rather produced by a few seemingly insignificant accompanying circumstances, than by any distinguished beauty of design in the cottages themselves. Their inhabitants were evidently poor, and apparently had not repaired their dwellings since their first erection; and, certainly, had never torn one tuft of moss or fern from roofs or walls which were green with the rich vegetation of years. The valley was narrow, and quiet, and deep, and shaded by reverend trees, among whose trunks the grey cottages looked out, with a perfection of effect which I never remember to have seen equalled, though I believe that, in many of the mountain districts of Britain, the peasant's domicile is erected with equal good taste. I have always rejoiced in the thought, that our native highland scenery, though, perhaps, wanting in sublimity, is distinguished by a delicate finish in its details, and by a unanimity and propriety of feeling in the works of its inhabitants, which are elsewhere looked for in vain; and the reason of this is evident. The mind of the inhabitant of the continent, in general, is capable of deeper and finer sensations than that of the islander. It is higher in its aspirations, purer in its passions, wilder in its

dreams, and fiercer in its anger ; but it is wanting in gentleness, and in its simplicity ; naturally desirous of excitement, and incapable of experiencing, in equal degree, the calmer flow of human felicity, the stillness of domestic peace, and the pleasures of the humble hearth, consisting in every-day duties performed, and every-day mercies received ; consequently, in the higher walks of architecture, where the mind is to be impressed or elevated, we never have equalled, and we never shall equal, them. It will be seen hereafter, when we leave the lowly valley for the torn ravine, and the grassy knoll for the ribbed precipice, that, if the continental architects cannot adorn the pasture with the humble roof, they can crest the crag with eternal battlements ; if they cannot minister to a landscape's peace, they can add to its terror ; and it has been already seen, that, in the lowland cottages of France and Italy, where high and refined feelings were to be induced, where melancholy was to be excited, or majesty bestowed, the architect was successful, and his labour was perfect : but, now, nothing is required but humility and gentleness ; and this, which he does not feel, he cannot give : it is contrary to the whole force of his character, nay, even to the spirit of his religion. It is unfelt even at the time when the soul is most chastened and subdued ; for the epitaph on the grave is affected in its sentiment, and the tombstone gaudily gilded, or wreathed with vain flowers. We cannot, then, be surprised at the effort at ornament and other fancied architectural beauties, which injure the effect of the more peaceful mountain scenery abroad ; but still less should we be surprised at the perfect propriety which prevails in the same kind of scenery at home ; for the error which is there induced by one mental deficiency, is here prevented by another. The uncultivated mountaineer of Cumberland has no taste, and no idea of what architecture means ; he never thinks of what is right, or what is beautiful, but he builds what is most adapted to his purposes, and most easily erected : by suiting the building to the uses of his own life, he gives it humility ; and, by raising it with the nearest material, adapts it to its situation. This is all that is required, and he has no credit in fulfilling the requirement, since the moment he begins to think of effect, he commits a barbarism by whitewashing the whole. The cottages of Cumberland would suffer much by this piece of improvement, were it not for the salutary operation of mountain rains and mountain winds.

So much for the hill dwellings of our own country. I think the examination of the five examples of the cottage which I have given have furnished all the general principles which are important or worthy of consideration ; and I shall therefore devote no more time to the contemplation of individual buildings. But,



Cottage near La Cité Val d'Aoste.

before I leave the cottage altogether, it will be necessary to notice a part of the building which I have in the separate instances purposely avoided mentioning, that I might have the advantage of immediate comparison; a part exceedingly important, and which seems to have been essential to the palace as well as to the cottage, ever since the time when Perdiccas received his significant gift of the sun from his Macedonian master, περιγράφας τὸν ἥλιον, ὃς ἦν κατὰ τὴν καπνοδόκην εἰς τὸν οἶκον ἐσέχων; and then I shall conclude the subject by a few general remarks on modern ornamental cottages, illustrative of the principle so admirably developed in the beauty of the Westmoreland building, to which, it must be remembered, the palm was assigned, in preference to the Switzer's; not because it was more laboured, but because it was more natural.

*Oxford, Jan. 1838.*

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ART. II. *Supplementary Notice to the Paper on the Lowland Cottage, Italy, p. 7.* By KATA PHUSIN.

THE annexed woodcut (*fig. 40.*) was intended to appear with, and in illustration of, the paper on the Lowland Cottage, Italy, but was delayed by the engraver; it will, perhaps, make the remarks then advanced more intelligible. The building, which is close to the city of Aosta, unites in itself all the peculiarities for which the Italian cottage is remarkable: the dark arcade, the sculptured capital, the vine-covered gallery, the flat and confused roof; and clearly exhibits the points to which we wish particularly to direct attention; namely, brightness of effect, simplicity of form, and elevation of character. Let it not be supposed, however, that such a combination of attributes is rare: on the contrary, it is common to the greater part of the cottages of Italy. This building has not been selected as a rare example, but is given as a good one.

*Oxford, Jan. 1838.*

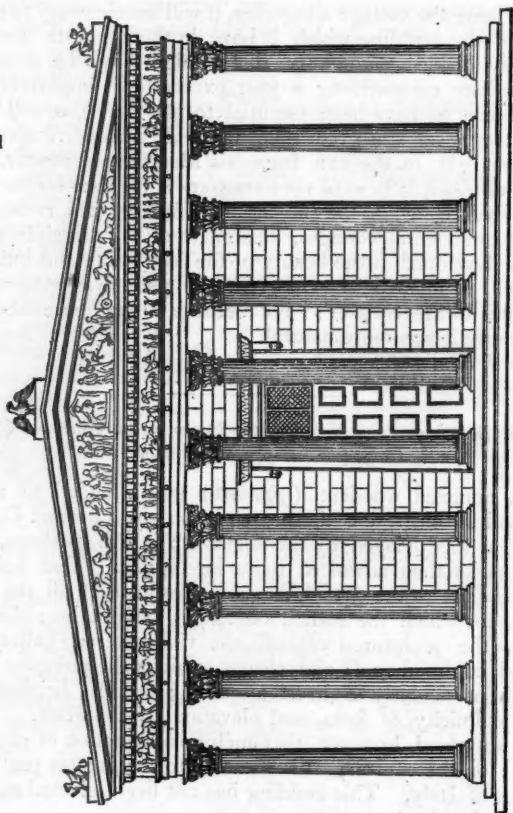
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ART. III. *Ideal Restoration of the Athenian Olympieum.* By CHARLES E. A. BLAIR, Architect.

(Read at the Ordinary Meeting of the Royal Institute of British Architects, Jan. 15. 1838.)

IN presenting an ideal restoration of the Temple of Jupiter Olympius at Athens, some explanatory observations respecting the history of this temple appear to me to be in a measure necessary to exemplify the subject. I purpose, first, to advert to the descriptions left us by Pausanias and other authors; and, after-

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wards, to show the materials from which I have produced the design (*fig. 41.*) now before you. That the subject is one of no ordinary interest, will, I think, be admitted; and, should the restoration in any way elucidate the form, arrangement, and proportion of a Grecian decastyle temple of the pycnostyle species, my wishes will be fully realised.

The state in which Pausanias (*lib. i. c. xviii.*) saw this temple, at the acme of its splendour, is thus described by him: — “The Emperor Hadrian dedicated the temple of Jupiter Olympius, and the statue, which is worthy of being seen; not, indeed, for its size (for at Rome and at Rhodes there are colossi much larger), but from being made of ivory and gold! with skill equal



to its magnitude. Here, also, are statues of Hadrian, two of which are of Thasian, and two of Egyptian, stone. In front of the columns there are brazen statues, belonging to the cities which the Athenians call colonial. The entire peribolus is about four stadia, or about one mile and a half, and is full of statues; for an image of the Emperor Hadrian is placed in it from every city; all of which the Athenians have greatly surpassed, by erecting the very remarkable colossus behind the naos, or cella, of the temple. There are within the peribolus, also, these antiquities: a brazen Jupiter, and the temple of Chronos and Rhea, and a sacred enclosure, to which they give the name of Olympia. Here the pavement has been rent to the breadth of a cubit, where they report the waters, after the deluge of Deucalion, to have run off. Every year they throw into this opening a cake made of flour mixed with honey. There is, also, here, on a column, a statue of Isocrates. In the same place, there are, also, Persians, of Phrygian marble, supporting a brazen tripod, both deserving to be remarked. It is reported that Deucalion built the most ancient temple of Olympian Jupiter; and, as a proof that Deucalion dwelt at Athens, they show his tomb, which is not far from the present temple."

Stuart describes the Olympium as consisting of seventeen Corinthian columns, each 6 ft. 6 in. in diameter, and nearly 60 ft. in height. The disposition of the plan evidently proves them to be the remains of a temple which had ten columns in front, and twenty-one in flank; and that it had two ranges of columns on each side. The extent of the front has been 171 ft., and the length of the flank 356 ft. 3 in.; so that, to describe this building in the language of Vitruvius, we must say it has been decastyle, dipteros, and hypæthrous, of great dimensions, or a complete example of the most sumptuous and stately of all the aspects of temples. It stood within a spacious area, which was enclosed by a peribolus, or surrounding wall, at present in great part demolished, but not so entirely as to prevent the measure of its side (that facing the south) from being perfectly ascertained.

Vitruvius tells us: "For at Athens, when Pisistratus set about building the Temple of Jupiter Olympius, the architects, Antistates, Callæschrus, Antimachides, and Porinos, laid the foundation. After the death of Pisistratus, because of the unsettled state of the republic, the prosecution of this work was discontinued; insomuch that it was about two hundred years afterwards (when King Antiochus had engaged to defray the expense of the structure) that it was magnificently erected by Cossutius, a Roman citizen, who determined the magnitude of the cella, and adjusted the arrangement of the columns about the dipteros, and the disposition of the architraves, and other ornaments, with

great skill and supreme science. This structure, indeed, is not spoken of with common praise: it is amongst those most renowned for their magnificence; for in four places only are seen sacred edifices adorned with marble which are thus celebrated; the excellence and sagacious contrivance of which have been approved of in the assembly of the gods." (*Vit. &c.*, lib. vii.)

The Earl of Aberdeen truly observes, in the preface to Mr. Wilkins's translation of *Vitruvius*, "that they display the utmost beauty and propriety, with, perhaps, the greatest degree of magnificence and grandeur ever attained to by the architectural exertions of the emperors of the Roman world. The remains of a dipteral temple, with columns, composed of the purest marble, more than 6 ft. 6 in. in diameter, and 60 ft. in height, cannot be described in any terms commensurate with the sensations excited by the view of the original."

Whenever, or by whomsoever, finished, these columns bear the indications of a pure age of Grecian art. Mr. Kinnard, the editor of the recent edition of Stuart's *Athens*, observes: "This was one of the largest and most sumptuous of all the temples of ancient Hellas; it was, also, equal, or superior, in the beauty of the marble, and the richness of the ornament, to the great Herœum of Samos, to the Didymœan temple of Miletus, and, probably, to the far-famed shrine of Ephesus!"

The ruins now existing of this temple do not comprise a tenth part of the entire structure, which, from the known dimensions of the great temples of antiquity spoken of by Vitruvius, appears (except that of Diana at Ephesus, and Jupiter Olympius at Agrigentum) to have surpassed all the others, both in magnitude and magnificence, and in completeness and perfection of execution. It was, in fact, the largest temple ever raised in Greece to the supreme pagan divinity. Speaking of Grecian art, Du Fresnoy, as translated by Dryden, poetically observes:—

"Mid curves that vary in perpetual twine,  
Truth owns but one direct and perfect line;  
Spread then her genuine charms o'er all the piece,  
Sublime and perfect as they glow'd in Greece."

Stuart, who first described this temple as the Olympieum, being little explicit regarding the history of it, I shall here subjoin some of the leading circumstances attending its construction. It is probable that the earliest Athenian temple to Jupiter (of which, from tradition, Pausanias has attributed the foundation to Deucalion) was the first sanctuary raised at this spot; and it, in all probability, partook of the rudeness and absence of order of primeval architecture.

Pisistratus was the founder of the sacred temple commenced about 540 years before Christ; and, from the employment of

four architects in laying the foundations, it would seem to have been projected on a scale correspondent with its subsequent extent; but, according to the style of architecture then chiefly cultivated in Greece, the order of the structure was, doubtless, Doric.

The works of the temple were carried on by the sons of Pisistratus, but were discontinued on the destruction of that family; and, probably, from a well-founded enmity to those tyrants, an edifice undertaken by them was suffered to remain a memorial of abortive enterprise; but, from the testimony of Aristotle (*De Rep.*, l. v. c. 9.), which places it in the same category with the pyramids of Egypt, and the Temple of Juno at Samos, it may be inferred that, even in his time, the structure was an object of extraordinary admiration.

Long after the Pisistratidæ, and the factions opposed to them, were no more, Antiochus Epiphanes refounded the temple, of which the ruins now surprise and delight us. Antiochus having been a hostage at Rome, at that city, probably, Cossutius the architect became known to him, who was consequently employed on this temple, of which, according to Vitruvius, he designed with great taste and science the magnitude of the cella, the arrangement of the columns in the dipteros, the distribution of the architraves, and symmetrical introduction of the ornaments, with Corinthian decorations and proportions; and it must have required no ordinary skill on the part of Cossutius to have constructed the architraves, the distance from centre to centre of the columns being 15 ft. The temple appears to have been in a forward state when Sylla took Athens by assault. He is recorded to have transported to Rome some of the columns for the decoration of the Temple of Capitoline Jupiter: but it is probable that these columns belonged alone to the interior of the temple. So magnificent an offering to the Olympian divinity was not long suffered to remain, at that age, in a state of dilapidation and abandonment.

Suetonius says that the kings in alliance with Augustus had resolved, at their common expense, to complete the temple, and dedicate it to the genius of that emperor. At length, however, Hadrian appropriated to himself the renown of terminating and dedicating in person a temple which had been nearly 700 years in progress; which many sovereigns had vied in attempting to complete, and on which are said to have been expended 7,088 talents, or about 567,040*l*.

Of this magnificence, and of these monuments of adulation, all that now remain are the seventeen columns already described, a part of the terrace wall, and vestiges of that of the peribolus, together with some inscribed pedestals scattered about Athens.

These, doubtless, sustained the tributary statues of Hadrian. And it is remarkable that a seeming record of the great architect Cossutius, confirming Vitruvius, has survived the near destruction of this temple, in the following inscription, found in the vicinity of it, probably belonging to the base of a statue: —

DECIMUS COSSUTIUS,  
SON OF PUBLIUS, A ROMAN.

History does not inform us of the progressive stages of destruction of this temple. At the time of the Marquis de Nointel, the ruin itself was in the same state as seen by Stuart and Revett, with the exception of a Greek chapel, rudely constructed within it, probably in a lower age, called St. John of the Columns, which now no longer exists. The Turks, also, had recently raised a stone pulpit, or praying place, at the south-east angle of the ancient peribolus; and, at periods of public calamity, were accustomed to assemble there for the purpose of simultaneous prayer; a proof how much the prejudice regarding the sanctity of a place once devoted to religion may impress the understanding, or to what a degree the emotion of the sublime, which is so powerfully produced by this ruin, is congenial with the contemplation of the Divinity, and affects equally all mankind.

*Reigate, Jan. 26. 1838.*

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ART. IV. *Remarks on Competition Designs for rebuilding the Royal Exchange.* By HENRY NOEL HUMPHREYS.

By the unfortunate conflagration of the Royal Exchange, another grand opportunity is created for a display of the powers of our national school of architecture. There will doubtless be an open competition, an open trial of skill for the glory of rebuilding "the temple of commerce." Much has been said and written in extenuation of the paucity of talent and true architectural genius displayed in a vast majority of the competing designs for the Houses of Parliament: as the display of a great national school, it was certainly contemptible; but then it is urged, in reply, that the restrictions respecting style cramped the genius and invention of many of the competitors; and, again, that the novelty of the system of open competition alarmed the prejudices of many among the most eminent of the profession; and, truly, after the long years of private jobbing, it was alarming enough to many who enjoyed government patronage, unchallenged by public opinion as to capacity and qualification. However this may be, it may now be fairly assumed, that, in the present instance, these alleged causes of failure will no

longer exist. That no particular style will be dictated to competitors, is now pretty clear from the proceedings and considerations that have already taken place upon the question. The inconveniences experienced by a contrary course have proved that every architect ought to be left to the genuine impulse resulting from his own taste and judgment, as to the style and character which ought to be imparted to a new building, both with reference to its individual structure, and also to its grouping with other buildings of importance in its immediate neighbourhood.

The other point, the novelty of the system of open competition, can no longer be pleaded; for public opinion has already pronounced too strongly upon this point, to admit of the slightest chance of any return to the old system of favouritism and monopoly in great public works. Therefore, all such as shun the chances of such a struggle must be considered as *hors de combat* as public practitioners; and few indeed will be induced thus to retire, only such, in short, as have much more to dread than to hope from the contest; and these cannot be considered a great loss to our school of architecture. Hence, we may infer that an open competition will now produce a fair sample of the state of the art in this country, an exhibition of the best powers of our best architects, and, I do trust, a noble display of national talent and genius in a truly noble art: for the European reputation of our school of architecture certainly requires that the impression produced by the late contest should be obliterated as soon as possible.

As this is a glorious opportunity for young architects to make their struggle for distinction, I trust they will come to the work with all the hope and enthusiasm that success requires; and I venture to offer the few ensuing remarks upon the style and spirit in which it appears to me that designs ought to be conceived. Before bestowing a thought upon the effect to be produced in the elevation, I would well consider the plan; which plan is to be founded upon the peculiar purposes and destinations of the building, to which it must be adapted with all possible fitness and convenience. It also behoves every architect well to consider whether the arrangements of the late building were good, and whether they fulfilled these conditions; and, if even pronounced good, whether any still better can be devised. Without giving full play and much reflection to such considerations, one might be led to adopt the general principles of the previous plan as an authorised pattern and precedent: for it requires some independence of thought, and firmness of opinion, to design a building for a precisely similar purpose, yet, totally different in arrangement from its predecessor; par-

ticularly when that predecessor had not been condemned and removed for any defect, supposed or real; but, on the contrary, being accidentally destroyed by a calamity generally deplored, and being almost universally admired as one of the chief architectural ornaments of the metropolis. These facts create involuntarily a sort of prejudice in favour of a similar arrangement, which we must suppress, and at once come to the simple question of fitness; unshackled by any over-scrupulous veneration for preexistent forms and feelings. Let us consider, for instance, whether the open quadrangle with the surrounding colonnade offers every requisite convenience for the daily meeting of mercantile men in this climate. It appears to me that it does not. Now, there are many ways and means by which greater protection from cold and wet may be advantageously obtained. I will just allude to two that have occurred to me as offering many advantages.

In the first place, a quadrangle and colonnade might exist, as at present; but to each walk ("Baltic," "American," "Portuguese," &c.) a coffee-house might be attached, opening to the colonnade, as do the shops in the Palais Royal. These would be rather public rooms than mere coffee-houses, to which, in consideration of a small annual subscription, merchants, captains, and others, should be entitled to free access and the use of tables, pens, ink, &c., without the necessity of taking refreshments, which, nevertheless, could be had in the adjoining eating-room, if required. The respective entrances to these rooms from the interior colonnade should be closed at usual change hours; but the entrance to the refreshment-room should be from the exterior, so that the general coffee-house business might be carried on in the regular way. Such establishments need not disfigure the symmetry of the building, on the exterior or interior, half so much as shops; indeed, not at all, and they would bring in a far greater rental. It may be urged against this plan, that it would injure the proprietors of such concerns as the North and South American coffee-houses, &c.; but, by giving the refusal of the proposed establishments to these individuals first, all injustice would be done away with. I am indebted for this idea to a commercial friend, for whose opinion I have the highest esteem; and, from his great experience and judgment, I feel confident of its practicability.

My other, and favourite, plan, would be to have no interior court, but to have the entire central space of such a quadrangular building occupied by a vast covered arena, a magnificent hall lighted from the roof, and surrounded by highly ornamented open galleries communicating with the entrance to the different apartments, offices, counting-houses, Lloyd's establishment, &c.,



of which arrangement the *loggia* of the Vatican may serve to give an idea. I think a grand hall, with its surrounding tiers of enriched galleries, approached by suitable flights of steps, would have a noble and novel appearance, as well as answering the purpose in view; namely, providing a suitable arena for the meetings of mercantile men, where business might be conveniently discussed at all seasons. This idea is thrown out in the rough, without any pretension to a well-digested plan; but, at a future time, I may attempt to develop it more completely. For the present, my only purpose is to call attention to a few principal points, for neither time nor space allow me to touch upon the more detailed arrangement of a plan.

In conclusion, therefore, I will just note down a few stray thoughts upon the character of the elevation. In the first place, I would say that I think it highly improbable, taking the locality and other circumstances into consideration, that any Gothic design will be adopted; therefore, let competitors eschew Gothic. Next, I would say eschew porticoes; nothing original can be done with them: the very few ancient models that remain to us have been twisted, and turned, and adapted in every possible way: they are now threadbare; and, unless some new model could be *détarré* to infuse a little freshness of spirit, Greek porticoes had, I think, better be left alone. I dare say most architects have a very nice pattern or two which could be brought in without much trouble; but, I should say, leave it in the portfolio. Neither portico nor columns are indispensable requisites in such a building as the one in question: indeed, half the columns in our modern architecture support nothing. Columns supporting nothing! *lucus a non lucendo*. The admired exchange of Paris may, perhaps, be brought in witness against me: but I presume we do not want, as it were, a mere reprint of an ancient building in a structure devoted to commerce. Such an idea appears better suited for a plaster model to be placed in a museum, or, at most, to a building devoted in some way to the arts and their history and origin, than to one of the present character.

The Royal Exchange should, in its structure and design, display all the advantages resulting from the great discoveries of modern science which can be advantageously applied to architecture: it should be a monument of the existing state of the intelligence and original genius of the country; and a building conceived in this feeling could not fail to present such novel features as would be quite refreshing after all the servilities of the imitation system. I would just hint that a fire-proof structure would, perhaps, be thought to possess claims to preference after the recent calamitous conflagrations in different parts of Europe; and to such as feel that their talents and studies qualify

them for such an attempt, I would suggest the employment of iron to a great extent in some designs, the proper adoption and application of which would produce an entirely novel architectural feeling. Cast-iron columns of Doric proportions are ridiculous: half their bulk would support twice the weight above them. Every material, to insure elegance and truth, and such results as are alone in accordance with the real principles of taste, must be applied with due regard to its nature and to fitness; and, following out this principle, completely divested of the trammels of proportions fitted to and devised for other materials, new forms and combinations must result, which cannot fail to be agreeable to the practised eye of taste. Fitness is the great originator of novelty and beauty, and the fundamental principle of taste.

To those indisposed to venture so far from the beaten track, I would suggest, as a fit model, the early palatial style of modern Italy; the most original style of modern times; for it was one of impulse more than study. But, when I propose it as a model, I mean only in spirit: I would have no measuring, I would have no curious imitation of detail. In the present instance, the proportions ought to be the result of the purposes of the structure, and the application of the true principles of art to any plan of construction employed: the detail ought to originate in the natural suggestions of circumstance and fitness; and then alone can it possess that harmonious accordance with the plan and elevation of the edifice, which is the true test of propriety and beauty.

Time obliges me to conclude abruptly; but I intend, at a future time, to offer a few more remarks upon this interesting subject.

*London, Feb. 1838.*

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#### REVIEWS.

ART. I. *The History and Description, with graphic Illustrations, of Cassiobury Park, Hertfordshire, the Seat of the Earl of Essex.* By John Britton, F.S.A., &c. Folio, 32 pages and 22 plates. London, 1837.

THIS is a splendid work, uniting at the same time accuracy, elegant taste, and usefulness. It is splendid as a whole, from the number and large size of the plates, and the artistical excellence which they display; it is elegant, from the lightness and clearness of the page, and the airy vignettes with which it is illustrated; it is most accurate in its architectural details, the engravings being all from drawings by eminent artists; and, finally (and this is what enhances the value of the book more to us than anything else), it contains a number of ground plans

of commodious cottages, for the keepers of gates and lodges, bailiffs, gamekeepers, woodmen, and other labourers and officers, usually to be found on an extensive estate. The plans of these cottages are not only exceedingly convenient, but the elevations are singularly picturesque: they are favourite objects with the present earl. Some of them, it is said, have been built from his designs, and they are always kept in the highest order. We shall notice them again when giving an account of the contents of the work.

The dedication is to the venerable earl, whom Mr. Britton first met, in the last year of the last century, at Hampton Court, in Herefordshire. In the preface, which is introduced by a beautiful vignette of the Swiss cottage, the dignity and utility of the study of topography are pointed out, and the author's obligations are stated, and thanks given, to the different persons from whom he received assistance. The Earl of Essex generously presented him with the copperplates, mostly of folio size, and no fewer than twenty-two in number; and this circumstance accounts for the low price at which Mr. Britton is able to afford this work: for, had the copperplates, and the drawings from which they were executed, been paid for by the author, the price must have been fifteen or twenty guineas, instead of five guineas. The contents show that the work consists of three chapters:—1. Local History; 2. Memoirs and Pedigrees; and, 3. Description of Modern Cassiobury. The list of illustrations comprises twenty-two copperplates, from drawings by Turner, Pugin, Hunt, Billings, Edridge, Villiers, Alexander, and others; and engraved by Hill, Havell, Lewis, Scriven, &c. The woodcuts are thirteen, all by eminent artists, and principally engraved by S. Williams. The list of subscribers, which is considerable, consists chiefly of architects, artists, and booksellers; at the head of which, however, is the Duchess of Kent, and various dukes, earls, marquesses, and lords.

Chap. 1. is introduced by a most elegant vignette of Thorn Cottage. This chapter is entitled, "On Local History."—The Cassii, Cassio, and Cassio-bury.—Julius Cæsar and Cassibelanus.—Connexion of Cassio with Verulamium, and with St. Alban's Abbey.—History of the Manor. This is an extremely interesting chapter, though the subject of it is foreign to that of this Magazine. Cassiobury is supposed to have been the residence, or rather habitat, of Cassibelanus, the head of a tribe of aboriginal Britons, mentioned, in Cæsar's *Commentaries*, as a man of importance. In point of antiquity and celebrity, therefore, Cassiobury can hardly be equalled by any other place in Britain. Cassiobury first became private property in the time of Henry VIII., who granted the manor of Cassio to Sir Richard Morrison, Knight, who greatly improved the place,



which was afterwards completed by his son, Sir Charles Morrison, who died in 1599. "On the marriage of Elizabeth Morrison, the only surviving child of Sir Richard's grandson, the family property passed to her husband, *Arthur Lord Capel*; from whom the present possessor of Cassiobury is lineally descended." (p. 15.) The tail-piece to this chapter is an exquisitely engraved woodcut of Cassio-bridge Cottage.

Chap. II. is introduced by a vignette of Russel Cottage, built with wooden framework, filled in with brick plastered over. It is entitled "*Brief Memoirs*," with pedigrees of the Morrisons and the Capels, lords of the manor of Cassio. The tail-piece exhibits a view of Ridge Lane Cottage, of which, through the kindness of Mr. Britton, we are enabled to give a fac-simile impression. (*fig. 42.*)

Chap. III. is introduced by Great Beech Tree Cottage, a thatched structure, comparatively simple in its outline, as all thatched structures ought to be; thatch being a material altogether unsuitable for acute angles. This chapter is entitled "*Topographical Description of Modern Cassiobury*," with accounts of the park, the gardens, the house, and its pictures, the cottages, lodge, &c.

Cassiobury, as described in the two preceding chapters, is associated, more or less, with the Britons, at war with, or oppressed by, the Romans; of Saxon vassalage; of Catholic aggrandisement, and its long reign of supremacy, and by the

important revolution effected by the suppression of monasteries: but Cassiobury, in this third chapter, presents a scene of domestic peace and rural beauty. "It sparks, woods, lawns, and waters; its floral and horticultural accompaniments; its mansion, stored with choice productions of art and literature; and the serenity and general comfort which pervade the whole; cannot fail to produce deep and salutary impressions on the philanthropist and philosopher." (p. 25.) The park is first described, and next the house, then the gardens, next the cottages, and, lastly, the family monumental chapel at Watford.

We shall extract what is said on the subject of cottages, and add the ground plans of some of them, the woodcuts having been kindly lent us by Mr. Britton.

#### COTTAGES.

"In different parts of the park and grounds, are various cottages and lodges, which are distinguished at once for their exterior picturesque features, and for the domestic comfort they afford to their humble occupants. Unlike the ragged wretched sheds and hovels which are too often seen by the road side, and even in connexion with some of the large and ancient parks of our island, the buildings here delineated are calculated to shelter, to console, and gratify the labourer after his daily toil, and to make his wife and family cleanly and diligent. Were the mechanics and work-people of large manufacturing towns, and the peasantry (our "country's pride") provided with better and more comfortable habitations than are generally allotted to them, the debasing and ruinous gin-shop and public-house would be less frequented; and ragged impudent children would not so constantly infest our streets and public roads. The cottage at Cassiobury have been designed with the twofold object of being both useful and ornamental. They are occupied, exempt from rent and taxes, by men and women who are employed by the noble landlord in various offices about the park, the gardens, and the house; thus the park-keeper, a game-keeper, a shepherd, a lodge-keeper, a gardener, a carpenter, a miller, a lock-keeper, &c., are accommodated."

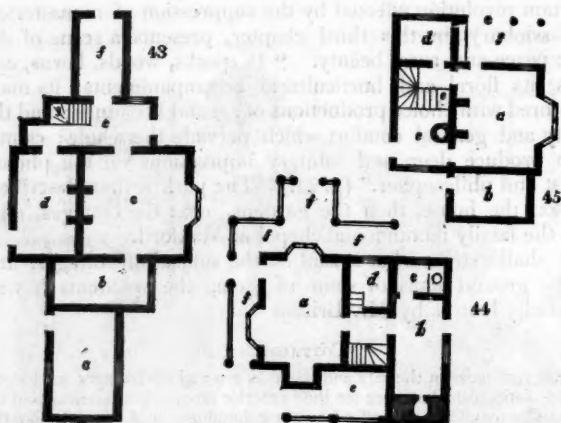
In the interior arrangement of these cottages, most of them contain a porch, a sitting-room, one or two bedrooms, and a wash-house, with an oven and copper.

*Fig. 43.* is a ground plan of the park-keeper's cottage, in which *a*, is a slaughterhouse; *b*, a dairy and larder; *c*, a sitting-room; *d*, kitchen; *e*, entrance; *f*, porch; and *g*, staircase.

*Fig. 44.* is a ground plan of Thorn Cottage, in which *a* is the sitting-room; *b*, bakehouse and scullery; *c*, *d*, cellar; *e*, shed over well; *f*, porch and covered-way.

*Fig. 45.* is the shepherd's or keeper's lodge, in which *a* is the sitting-room; *b*, wood-house; *c*, wash-house and oven; *d*, pantry; *e*, staircase; *f*, porch.

*Fig. 46.* is the entrance lodge for two families, in which *a* and *g* are sitting-rooms; *b*, staircase; *c*, entrance; *d*, wood-house; *e*, passage with dwarf wall; *f*, gates; *h*, staircase; *i*, wash-house. This cottage forms the lodge to the London entrance, and is understood to have been partly the design of Wyatt, and



partly of the earl. It certainly forms a very handsome group. The massive gates are hung with Collins's hinges, and move so easily, that they may be opened or shut by a child.

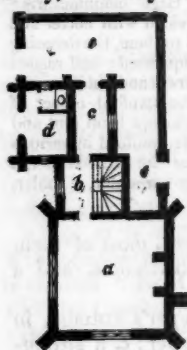
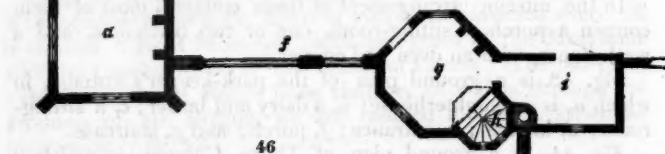


Fig. 47. is Ridge Lane Cottage, which is of two stories, each appropriated to a family. The elevation of this cottage has been already given, p. 116., in which is seen the porch of entrance for the family who occupy the ground floor, and the porch at the top of an outside staircase, for the occupant of the upper floor. The ground-plan contains, *a*, kitchen; *b*, sitting-room; *c*, bedroom; *d*,



wash-house, oven, &c.; *e*, pantry; *f*, staircase to a floor for another family; *g*, porch.

Fig. 48. is a plan of Great Beech Tree Cottage, which, being of larger extent than the others, and highly ornamented exteriorly, may be considered in the light of a cottage *ornée*. It has five rooms on the ground floor, and others up stairs. The ground plan contains, *a*, sitting-room; *b*, bedroom; *c*, porch and passage; *d*, sitting-room; *e*, housekeeper's room; *f*, pantry; *g*, cellar; *h*, back entrance; *i*, kitchen; *k*, porch.



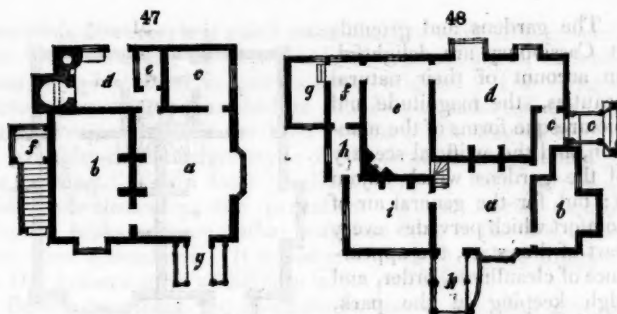
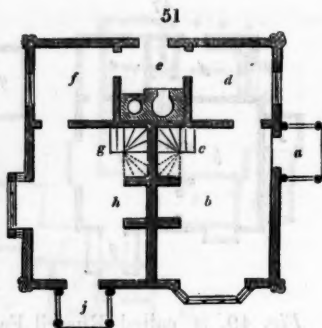


Fig. 49. is called Russell Farm Lodge, and is erected at the entrance to Russell Farm, by the side of the public road, between Watford and Berkhamstead. Russell Farm is occupied by General Sir Charles Colville, Bart., who rents it from the Earl of Essex. The ground plan contains, *a*, back porch; *b*, kitchen; *c*, sitting-room; *d*, bedroom; *e*, wash-house, &c.; *f*, front porch with seat.

Fig. 50. is Russell Cottage, for two labourers' families. The ground plan contains, for the one cottage, a porch (*a*), sitting-room (*b*), staircase (*c*), wash-house (*d*), and oven and copper common to both cottages (*e*). The other cottage contains a wash-house, communicating with a room containing the common oven and boiler; a living-room (*h*), stairs to the bedroom (*g*), and porch (*j*).

Fig. 51. is Cassio-bridge Cottage, for two labourers' families. The walls of this cottage are covered with split hazel, and other rods, the flat side being applied to the walls, and the bark exhibited externally to the weather and the eye. The pieces are all of the same diameter, but of different lengths; and they are arranged so as to throw the surface into panels, variously composed, in the manner of the Duke of Marlborough's garden structures at White Knights. The ground plan of each of these cottages shows exactly the same accommodation as in the Russell Cottage; viz., two porches (*a* *j*), two living-rooms (*b* *h*), two stairs (*c* *g*), two wash-houses (*d* *f*), an oven and boiler room common to both houses (*e*).

The gardens and grounds at Cassiobury are delightful, on account of their natural beauties, the magnitude and picturesque forms of the mansion, and the artificial scenery of the gardens which adjoin it; but for the general air of comfort which pervades every part of the estate, the appearance of cleanliness, order, and high keeping in the park, which is so strongly impressed on the mind of the stranger, we think it is more indebted to these cottages than, perhaps, to any other feature. Perhaps the only useful addition that could be made to the interior of such dwellings would be one of Arnott's stoves to each.



ART. II. *On Warming and Ventilating; with Directions for making and using the Thermometer Stove, or self-regulating Fire; and other new Apparatus.* By Neil Arnott, M.D., F.R.S., &c., Physician Extraordinary to the Queen, Author of the "Elements of Physics," &c. 8vo, pp. 138. London, 1838.

WE are much mistaken, if Dr. Arnott's stove is not by far the best substitute that has yet been proposed for an open fireplace. We say this, not alone from having perused the work before us, and seeing the stoves at the manufacturer's, but from the experience of a gentleman at Bayswater, who (though we did not know it till quite lately) has had one of these stoves in operation for upwards of six months, and has experienced all the advantages from it set forth by its inventor. We entered the rooms heated by it on a very cold day, and found the temperature delightful. Fuel was only supplied twice a day, and no stirring it with poker or tongs ever given between. It was placed in the back room of the parlour floor: it heated that room and the front room; and, when the parlour doors were opened, it heated the whole house, the thermometer opening the regulator so as to accelerate the burning of the fire, and produce the extra heat required. Dr. Arnott's stove has the great advantage over Mr. Joyce's, that any sort of fuel may be burned in it. In short, it differs chiefly from a particular kind of German stove, in which the fire is burned in an isolated furnace within a casing of sheet iron; and from the Bruges stove, in which the fire is burned in an isolated grate within a casing of cast iron; in having the self-regulating thermometer. As an

invention, however, it is much more likely to come into general use from its being an improvement on preceding inventions, than if it had been in every respect original. The Bruges stove, figured and described in the *Encyclopædia of Cottage Architecture*, and also in the First Volume of this Magazine, may be considered as the prototype of Dr. Arnott's stove, adapted for cooking. It is a most excellent stove for both purposes, and, notwithstanding the prejudices against stoves among English cooks, we are rather surprised that it has not come into more general use. It would save as much in the kitchen, as Dr. Arnott's stove would save in the parlour.

Before describing the thermometer stove, we shall give a short notice of the treatise relating to it. This treatise is the substance of a lecture delivered at the Royal Institution in March, 1836. It was not published sooner, because it was desirable to have to report the result, not of one or two experiments only, but of many; and, in consequence of more extended experience, to be able to make evident to popular apprehension those popular misconceptions and prejudices which have hitherto prevented the introduction of better modes of heating. Every man, who has anything of the feeling of a tradesman about him, will naturally say, "Why did not Dr. Arnott take out a patent for his invention? he would have made a fortune by it." Undoubtedly he would; but Dr. Arnott had much nobler views, and has made a fortune of an infinitely more exalted kind than it is in the power of money to produce. We cannot introduce this subject better than in Dr. Arnott's own words:—

"My reason for delivering the lecture before I had the book fully prepared, was, that, as I had decided not to reserve for myself any patent right in the new apparatus, I might, by having numerous competent witnesses of what I had proposed and accomplished, prevent other parties who might hear of my processes from appropriating them by patents, and thus coming between me and the public.

"Because several of the new means, and particularly the thermometer stoves, are of the nature of the things for which patents are usually taken, friends had urged me strongly to follow the custom; representing that the legislature of this country has devised the patent alone as a mode of remunerating the proposers of useful inventions; and that many honoured names, as lately, of Watt, Arkwright, Wollaston, &c., are in the list of those who have profited by the law; and further, that, in the case of the stove, it would be an advantage to the public, that I should retain the right of naming the persons allowed to manufacture it, thereby to prevent such disappointments from imperfect workmanship as happened in some cases with regard to my hydrostatic bed, and other suggestions strictly professional.

"I had decided not to take the patent; because the stove was originally planned as a means of preventing and curing diseases, purposes for which it will always be important, whatever other advantages be derived from it; and in this country it is usual for members of the medical profession to make an offering at once to the public of any means for the benefit of the general health, which they may discover or devise, without stipulating for private advantage. Then, although I believe I might have better served the public

by keeping control over the sale of the floating bed, I think, in regard to the stove, that the construction and management will by this publication be rendered so intelligible to all, that mistakes can scarcely happen; and it is likely that the wide competition among the talented men about to engage in the manufacture will sooner lead to the adoption of the best and cheapest forms and construction than if the business had remained in fewer hands.

"Since I gave my lecture, and publicly described the thermometer stove, I have heard of various supposed improvements on it, and substitutes for it, which, however, have only proved how little the subject was understood, either by the persons who could make such proposals, or the portions of the public which could entertain them."

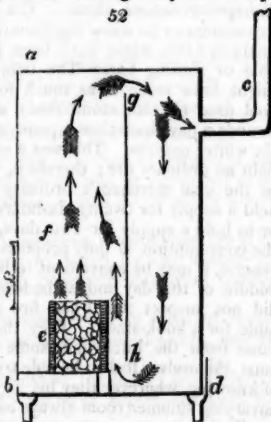
In the introduction, the author illustrates in a popular manner the four conditions of health to man; namely, "fit air, warmth, aliment, and exercise of his bodily and mental faculties." "The total want or privation of the four necessities quickly extinguishes life." "Mismanagement in regard to the four necessities produces disease and premature death." "While faulty management in regard to the four necessities is thus the chief cause of the great mass of diseases, peculiarly modified management of them becomes the chief part of the cure of all diseases." "The four necessities, with poisons and violence, are the primary or original sources of human pleasures and pains, and the great motives of human actions." "The knowledge of some of the truths above announced has been slowly acquired by man." The educated members of civilised communities possess this knowledge; and the object of Dr. Arnott's work is "to render the knowledge on the subjects of ventilation and warming, which now exists among the learned, familiar to all, and to introduce to public notice new and simple means of securing the ends in view." (p. 13.) The author next treats of ventilating and warming generally, and afterwards gives a history of heating apartments by fires in a chimney, by close stoves, by steam, by hot water, and by hot air; and, having thus given a popular and instructive sketch of the chief means which were used for warming and ventilating up to 1834, he proceeds to describe the self-regulating fire or thermometer stove. His attention was drawn to the subject of "controlling temperature, for the purposes of health and comfort," by various professional occurrences which took place in that year. The subject had before engaged his attention, but he now set before him the problem, "To secure effectually, in any part of the world, and at all seasons, the temperature, moisture, and purity of atmosphere most congenial to the human constitution." After setting up an apparatus in his library, and making various experiments, the idea of a box of water "heated not by communication with a distant fire, but by a small fire within itself" (such as is used for heating portable baths), occurred to him.

"This constituted a water-clad stove; and, as the steam of the water, when heated to the boiling point, passed, by an aperture provided, into the chimney,

the external surface of the box could never be hotter than boiling water, and could no more, therefore, vitiate the air of the room than the simple water-box did. To prevent the water from boiling too rapidly, and being wasted, the air, to feed the combustion, was admitted only by a small aperture near the door of a close ash-pit, in which aperture was placed a throttle-valve, regulated by a peculiar thermometer, which will be described in a future page. The aperture was closed by the thermometer whenever the temperature reached the boiling point, or any other point that might be chosen, and was opened again whenever the thermometer fell to below the point chosen. This stove, besides its uniform moderate temperature (for it was a box of boiling water, which, although giving out heat, never cooled), had nearly all the economical advantages of the close German or Dutch stove; for so much of the chimney-flue might be exposed in the room as to apply usefully nearly all the heat of the smoke. There was here, however, still an apparatus rather difficult to make, and expensive, liable to be out of order, heavy, requiring considerable attention from servants, &c. It may be mentioned, however, that several forms of the water-clad stove may still be useful.

"After the step made by the construction of the stove just described, it was easy to make another and more important step. The object sought was now clearly seen to be, merely to place in any apartment the required extent of metallic surface, kept steadily at a temperature not exceeding 200° of Fahrenheit. It evidently was of no importance what hot fluid filled and warmed the vessel (whether water, steam, oil, or air, or whether there were an included fire), provided the temperature of the surface was maintained; for the box in any case would be quite close, permitting no escape of its contents. If, therefore, in a box of the required size, a fire could be placed so as to warm the box with perfect uniformity all around, while the fire itself was so controlled by a self-acting regulator, that it should burn always exactly as fast as was required to keep the box steadily at any desired temperature, the object sought would be attained, and there would be many concomitant advantages of cheapness, simplicity, &c. These words have sketched the *self-regulating fire or thermometer stove*, of which the form first tried is now to be described more particularly by aid of the woodcut.

"The outline *a b d c* (*fig. 52.*) represents a box formed of sheet iron, and divided by the partition *g h* into two chambers, communicating freely at the top and bottom. The letter *e* marks the fire-box or furnace, formed of iron, lined with fire brick, and resting on a close ash-pit, of which *b* marks the door, and near which door there is a valved opening, by which air enters, to feed the fire when the door is shut; *i* marks the door of the stove, by which fuel is introduced; *c* is the chimney flue. While the stove door and ash-pit door are open, a fire may be lighted, and will burn in the fire box just as in a common grate, and the smoke will rise and pass away by the chimney, mixed with much colder air, rushing in by the stove door; but, if the stove door and ash-pit door be then closed, and only as much air is admitted by the valved opening in the ash-pit as will just feed the combustion, only a small corresponding quantity of air can pass away by the chimney, and the whole box will soon be full of the hot air or smoke from the fire circulating in it, and rendering it every where of as uniform temperature as if it were full of hot water. This circulation takes place, because the air in the front chamber around



the fire-box, and which receives as a mixture the red-hot air issuing from the fire, is hotter, and therefore specifically lighter, than the air in the posterior chamber, which receives no direct heat, but is always losing heat from its sides and back; and thus, as long as the fire is burning, there must be circulation. The whole mass of air is, in fact, seen to revolve, as marked by the arrows, with great rapidity; so that a person looking towards the bottom of the stove, through the stove door *i*, might suppose, if smoking fuel had been used to make the motion visible, that he was looking in at the top of a great chimney. The quantity of new air rising from within the fuel, and the like quantity escaping by the flue *c*, are very small, compared with the revolving mass. There remains to be noticed only the thermometer regulator of the combustion. Many forms presented themselves to my mind, as described in the section on the manufacture of the stove, any one of which will close the air passage, slackening or suspending the combustion at any desired degree, and will open it again instantly, when the temperature falls below that degree.

"I had thus a simple box of iron, of cheap and easy construction, answering all the purposes of expensive steam or hot-water apparatus, burning its fuel as steadily and regularly as an argand lamp burns its oil, or as an hour-glass lets its sand run through; and allowing me, by merely touching a screw on the thermometer, rapidly to increase or diminish its heat, as by touching another regulating screw we increase or diminish the light of a lamp.

"What chiefly surprises a stranger in this new stove, is the very small quantity of air required to support the combustion which warms a large room: the whole might enter by an opening of half an inch diameter, and the quantity of air or smoke which passes into the chimney is, of course, proportionally small. These facts at once suggest how small the consumption of fuel must be, as that depends on the quantity of air entering; how perfect the combustion of the fuel must be where so little is expended; and how completely the heat produced in the combustion must be turned to account. The combustion is so perfect, because the fuel is surrounded by thick fire-brick, which confines the heat so as to maintain intense ignition; and the saving of heat is proved by the rapidly diminishing temperature of the flue, detected by a hand, passed along it from the stove. During the winter 1836-7, which was very long and severe, my library was warmed by the thermometer-stove alone. The fire was never extinguished, except for experiment or to allow the removal of pieces of stone which had been in the coal; and this might have been prevented by making the grate with a moveable or shifting bar. The temperature was uniformly from 60° to 63°. I might have made it as much lower or higher as I liked. The quantity of coal used (Welsh stone coal) was, for several of the colder months, six pounds a day (less than a pennyworth), or at the rate of half a ton in the six winter months. This was a smaller expense than of the wood needed to light an ordinary fire; therefore, the saving was equal to the whole amount of the coal merchant's ordinary bill. The grate, or fire-box, fully charged, held a supply for twenty-six hours. It might have been made twice as large, or to hold a supply for two days, and there would have been no waste, as the consumption is only proportioned to the air allowed to enter; but, in general, it may be convenient to have to look at and charge the fire in the middle of the day and at bed-time. Many strangers coming into my room did not suspect that I had fire in the stove, for it was used generally as a table for a book-stand. They thought the agreeable warmth of the room came from the kitchen, or some neighbouring room. I believe that persons must themselves feel to be able truly to conceive the charm, in dreary winter, of knowing, wherever they be, in cold, or rain, or snow, that a perfect and unvarying summer room always awaits their return home.

"The thermometer stove, as compared with other modes of warming, will be best understood by reviewing its chief qualities. A general expression



for them is, that it possesses all the advantages of steam or hot-water warming, with many advantages peculiar to itself."

The particular advantages are: *Economy of Fuel*. A common open fire wastes seven eighths of the heat produced; but Dr. Arnott's stove does not allow the air, which has fed combustion to escape until it is deprived of nearly all the heat; and it does not allow any of the warm air of the room, except the little which feeds the fire, to escape through the chimney. To render palpable the difference of effect between fuel consumed in an open fireplace and fuel consumed in a close stove, set fire to a sheet of paper in each. That in the stove will warm it, as if boiling water had been poured into it, and the heat will be given off into the room; while that in the open fireplace will produce no sensible effect in the room. One eighth of the fuel which is needed for a common fire suffices for a thermometer stove; and stone coal, or anthracite, coke, and even cinders, in a word the cheapest fuel, answers better than that which is dearer.

*Uniform Temperature* is obtained in all parts of the room throughout the day, and throughout the night also, if required.

*The Stove is always olight*, by which the temperature of the place warmed is uniform, and much fuel is saved. "More fuel would be wasted in one morning hour, by the attempt suddenly to raise the temperature of a room which had become cold in the night, than by keeping the fire burning moderately all the night."

*No Smoke* can come from the stove, or dust; there is no danger to persons approaching it; no danger to property by live coal being shot from the fire. Obedience to command is another advantage, the screw of the regulator as certainly increasing or diminishing the temperature as the screw of a lamp varies the light. An open fire is often the master of the attendant, but a child may manage the stove without failing.

"*The trifling original Expense*, compared with the cost of apparatus for warming by steam, hot water, or distributed hot air, and as compared even with a good open grate and fire-irons. The saving of fuel in one winter would nearly pay for the stove.

"*The small Expense of Attendance upon it*; whereas, if a common fire is to be kept burning, there must be some person to watch it; and, if there be several such fires, the servant will be almost constantly employed passing from room to room.

"*It is easily moved*, after the chimneys are prepared, from room to room, or house to house, nearly as a large chair, or a chest of drawers, may be moved.

"*Graceful Form*. It may be fashioned to please the fancy; as a pedestal, vase, urn, pillar; even a statue, or indeed, may be of almost any beautiful form.

"*It is a good Cooking Stove*, and, therefore, the poor man's stove.—A second small iron box placed within it, with a door opening outwards through the

side of the stove, is a perfect oven; as is proved, indeed, by the common American stove, described at art. 31., which in this respect resembles it. A small kettle or cooking vessel may be placed directly on the fire. Potatoes and other things may be roasted in the ash-pit; and, if the ash-pit be made large, with the fire-bars sloping, so as to present a considerable surface of naked fire looking downward and forward, meat may be roasted there. The top of the stove is a perfect hot plate, on which anything may stand, either to be heated or to be kept warm. If the stove be heated to the boiling point of water, a tea-pot of cold water placed upon it, under a dish cover, soon contains boiling water; and similarly eggs or other things may be boiled. Thus the breakfast of a solitary student in London chambers may be easily prepared by himself.

*"No Sweeping Boys are required,"* as already explained.

The advantages hitherto enumerated of the stove, in its domestic bearing, might be otherwise classified under the heads of Economy of Fuel, Economy of Original Expense, Economy of Service, Economy of Comfort, Economy of Health and of Life, Economy of Furniture and Property generally, and Economy of Time.

There is one circumstance connected with this stove, as used in a sitting-room, which may at first by some be deemed a disadvantage; namely, that the fire is concealed from view. But that the English feeling on this subject is merely an accident, is proved by the contrary feeling existing as strongly elsewhere, as in Northern European and some American countries. While the Englishman dreads losing his cheerful hearth or fireside because of his pleasing associations with it, people on the Continent dread having such a fire, because their experience tells them that the open fire is accompanied by cold draughts, discomfort, and danger, which do not attend the close stove; and, if the Englishman himself would, in summer, fly from a fire as an insufferable object, he may soon, in winter, when the thermometer stove makes a summer for him, cease to desire it. It is possible, however, to have an open fire, with many of the qualities of the stove, as will be shown in a future paragraph.

Another objection likely to be made by person before reflection, is, that they would be rendered very susceptible of cold by living in rooms always heated to about 60°. Now, the temperature of 60° is in most countries the medium equally distant from the extremes of heat and cold, which persons may permanently use, or may approach or leave, with perfect safety. The danger of catching colds or heats is on entering or leaving rooms with open fires, heated, as they often are, to 70° and more, or cooled to 50° and below."

The author next recurs to the subject of ventilation; and, on this point, we think the use of his stove, as a substitute for open fireplaces, will be most liable to objections. We have little doubt that, were people once accustomed to it, the current of fresh air introduced by the draught of the stove fire, and the change of air produced by opening and shutting the door when persons came in or went out of the room, with the air introduced through crevices in the windows, doors, &c., would be sufficient for health; but, after having been accustomed, for the greater part of our lives, to that perpetual change of air, which takes place in the case of an open fireplace, it may reasonably be doubted whether the sudden change to the air of a room heated by a close stove might not have some unpleasant effects. Judging from our own experience, having passed a winter in Petersburg, some spring months in Sweden and the north of

Germany, besides several winter months in the south of Germany and in France, we should say that the change from open fireplaces to close stoves, with] an ordinary degree of intercourse between the rooms and the passages of a house, would be attended with no bad effects whatever; but, by a number of persons in this country, the matter will, we have no doubt, be viewed differently. If we live till next winter, we shall substitute the Bruges stove for an open fireplace in our kitchen, and try Dr. Arnott's stove and Mr. Joyce's in sitting-rooms and bedrooms, and let our readers know the result after six months' experience. In the mean time, let us hear what Dr. Arnott states on the subject of ventilating common rooms.

"Sufficient ventilation for an ordinary sitting-room will be insured, in a cold winter day: 1st, by the demand of air for the combustion in the stove; 2dly, by the considerable change occurring through the crevices around doors and windows, which may be taken at about six cubical feet a minute for each; and, 3dly, by the hundreds of gallons of fresh air, which, every time the door is opened, enter and displace an equal quantity of the air previously in the room. In warmer weather, when the difference between the external temperature and that of the room is less, and there is, therefore, less tendency to spontaneous change, some additional means may be used from among those to be described hereafter. But the three already mentioned have so considerable an effect, that, even in Russia, where they are the only means in common operation, and where they are counteracted very much by double doors and windows, and the closest fittings every where, in rooms without an open fireplace, and heated entirely by the action of stoves which are fed with air from the lobbies or passages, they still are sufficient. This is proved by the ruddy healthy countenances and long lives of the persons dependent upon them."

The remainder of the work we must pass over, as chiefly entering into details on warming and ventilating large buildings, and for the construction of the stove by those who intend to manufacture it. We have done enough, we trust, to induce every architect and builder, and, indeed, we might say, every reader, to procure the work and study it. Even on the general subject of heat, air, and ventilation, as connected with health, the work will richly repay perusal. Every subject on which Dr. Arnott touches in this work, on *warming and ventilating*, is treated of in so clear and satisfactory a manner, and so totally devoid of technicalities, that, like *The Elements of Physics*, it forms a most delightful piece of reading from beginning to end: the more delightful, because every line of it can be applied by the reader to some useful purpose.

The stoves are manufactured by Messrs. Bramah, Cottam and Hallen, May and Moritt, Mr. Huxley, and others. The present price, we believe is from 3*l.* to 10*l.*: but, we trust, by competition, it will soon be less, so as to render the stove available to the journeyman mechanic and the common labourer, both in town and country. We would suggest the idea of manufac-

turing some for warming only, and others for heating and cooking; some for being regulated by a thermometer, and others (for country labourers) without thermometers, for being regulated by hand. The trouble of hand regulation would be nothing, in comparison with that which is at present required for keeping up a fire in a common open fireplace.

It is a laudable practice of many benevolent persons in different parts of the country, to join in subscriptions for supplying the poor with coal, blankets, &c., during the winter. We would suggest that, in addition to this kind of association, societies should be formed for raising subscriptions to assist meritorious poor men in purchasing Arnott's stoves, fitted up in such a manner as to serve at once for heating and cooking. Were some influential persons to take up this subject, and pursue it with the ardour which is frequently evinced in the case of political or scientific societies, the quantity of good that would be effected throughout the country is incalculable. Thousands of cottages, from being cold and miserable abodes in the winter season (though a considerable quantity of fuel is burned in them), would, with one eighth part of that fuel, be rendered warm and comfortable; and the heat produced would not be confined to the kitchen or sitting-room, but would rise up to the bed-rooms, and, in short, be diffused over the whole house. Many country gentlemen give their cottagers Christmas presents; such as a load of coals, sacks of potatoes, meal, flour, blankets, &c.: we would suggest, as a present likely to be of permanent advantage, one of Arnott's stoves, or a proportion of the cost of one, or the loan of as much as would purchase one, to be paid back by instalments. We are aware of the prejudices that exist among the labouring classes against improvements, especially those that require anything like nicety of management: but let it be remembered that a new generation is coming into action; and, besides, that in every part of the country, and among every class of labourers, there are always some less prejudiced than others. Let these be tried first; let the carpenter, the smith, the mason, and the gardener, be offered stoves, with directions how to use them, and the result will, in time, induce their neighbours to follow their example. One feature in this stove will prejudice many against it as an article for the poor man, and that is the thermometer; but the thermometer, we contend, is not an essential part of the stove, because the same regulation produced by it may be produced by hand; and it cannot be much trouble to turn a register one way when the room is too hot, and another way when it is too cold; say even a dozen times a day. As we have just observed, this would be nothing to the trouble attendant on a common fireplace.

ART. III. *The Churches of London: a History and Description of the Ecclesiastical Edifices of the Metropolis.* By George Godwin, jun., Architect, Associate of the Institute of British Architects; Assisted by J. Britton, F.S.A., &c. The Illustrations by Robert William Billings, Associate of the Institute of British Architects. Nos. 11. to 14. 8vo. Price 1s. each.

THIS cheap and truly beautiful work continues to appear regularly; and, though we are generally inclined to think the last number the best, yet we certainly have no hesitation in expressing that opinion with respect to the fourteenth number. The fifteenth number, for March, contains the following interesting notice of Inigo Jones, who, it appears, was buried in St. Bennett's church, Paul's Wharf:—

"It appears from the register books here preserved, that the celebrated architect Inigo Jones, who may be deemed the first professor that introduced pure Italian architecture in England, was buried in this church; and, as it is our desire in tracing the history of the metropolitan churches, to connect them with as many events which relate to the alterations that have occurred in London, to the progress of improvement, and to the good and great of our species, as may be practicable (and thereby to increase the interest which they must of themselves possess in the estimation of their frequenters), we scruple not to avail ourselves of the circumstance, and sketch briefly the principal events of his life.

The father of Inigo Jones appears to have been in indifferent circumstances, and apprenticed his son, when young, to a joiner. While with his master, however, he displayed so much skill as a draughtsman, that he attracted the notice of William Earl of Pembroke, and was sent by that nobleman to Italy, to improve his taste, and acquire knowledge. Here he quickly gained so good a reputation, that Christian IV., King of Denmark, appointed him his architect; and, when the sister of that king married James I. of England, Jones came into this country, and received an appointment from her. About 1612, he again visited Italy, and, on his return, was made Surveyor-General to the king; and designed several buildings which were erected in London and various parts of the country.

In the reign of King Henry VIII. pointed style of architecture declined in England; the simplicity and beauty which characterised it in its best state had given way before a redundancy of ornament heaped upon it, through a craving for novelty on the part of its professors, and want of skill legitimately to gratify the desire. Artificers capable of executing works similar to those with which, up to that time, England had been adorned, began, too, to fail; and when, through the exertions of travellers, examples of Italian mouldings and ornaments were imported, they, being easily imitated, were eagerly adopted, and were used for some time indiscriminately with the forms of the last period of "Gothic" architecture. In 1566, we find at Caius College, Cambridge, small Roman Doric or Tuscan columns; and, at the commencement of the seventeenth century, we see the five "orders," as they are termed (or so many varieties of columns) piled one above another on the face of the Schools tower at Oxford; but, previously to the time of Inigo Jones, there were no buildings designed entirely in accordance with the revived principles of Italian architecture; nor was there any great improvement observable in the style of domestic buildings in London. As among the best known of his numerous designs, we may mention the Banqueting House, Whitehall, intended to form a portion of a magnificent and most extensive palace, designed

by him for King James I. but never executed; a portion of Greenwich Hospital; Coleshill House, in Berkshire; the chapel of Lincoln's Inn; and St. Paul's Church, Covent Garden, which is more singular than beautiful; and, although (since the investigation of the remains of Grecian architecture, from which arose that of Rome, has taught us the value of simplicity, and the beauty of breadth of parts) we cannot express that admiration for them which they once excited, we must nevertheless, extol the inventive powers which he possessed, and the taste which guided them. At that time, the monuments of Greece had not been examined, nor indeed were the remains of Rome's former magnificence so well known then as those of the former country are now, through the labours of Stuart and Revett, Donaldson, Wilkins, and others.

In his admiration of classic art, Jones sometimes allowed his judgment to sleep, as was the case when he affixed to old St. Paul's Cathedral, which was in the pointed style of architecture, a Corinthian portico; and again, when he laboured to prove, that Stonehenge, on Salisbury Plain, was a Roman temple: but for these mistakes, and some others, he may readily be pardoned.

The latter part of his life was much disturbed, in consequence of the civil dissensions during the reign of King Charles I., with whom he was a great favourite. Being a Catholic, he was called on to pay a heavy fine in 1646, and it is supposed that the mortifications he endured hastened his death, which took place in 1651. He was about eighty years old when he died.

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**ART. IV.** *Catalogue of Works on Architecture, Building, and Furnishing, and on the Arts more immediately connected therewith, recently published.*

**LE KEUX's Memorials of Cambridge, &c., No. IV.**

This work may safely be commended for the great beauty of of its plates and wood engravings, as well as for the copiousness of its letterpress, and its very low price. In an early number, we shall review it at greater length.

*The Millwright's and Engineer's Pocket Director: comprehending select and useful Prices of Mill-Work, Machinery, Engines, &c.; together with Explicit Calculations, Estimates, Tables, &c., with the Weights of Wrought Iron, Cast Iron, Copper, Brass, &c.: including, also, a variety of Miscellaneous Information of practicable Utility.* By John Bennett, Engineer, &c., Author of "Artificers' Lexicon," "Geometrical Illustrations," &c. 12mo, pp. 172.

A useful little work, calculated entirely for the practical man. Among the information not alluded to in the titlepage; is a list of the principal millwrights, engineers, iron-founders, &c., in and about London, which cannot fail to be useful, as well to the working man as to his employer.

*Some Account of Mont Orgueil Castle, in the Island of Jersey; its present State, its various Alterations and Additions: with a poetical Description of the Castle, written by William Prynn,*



during his Confinement therein, from 1637 to 1646. Pamph. 8vo, 54 pages.

Mont Orgueil Castle may be described as the ruins of a most remarkable fortress; which has figured in history since the beginning of the fourteenth century, but which is said by some to have been erected in the year 1000; and by Julius Cæsar, according to others. The remains of this castle might be well worth the study of the young architect, who might devote a country excursion to it; and, with this pamphlet in his hand, explore its remains, and make a drawing of their restoration. Such a drawing would be extremely interesting and instructive; not as affording a model to copy, but as showing the wonderful resources of the human mind, according to the circumstances in which it is placed.

*A Historical Sketch of the Royal Exchange. Chiefly compiled from Stowe and other Authorities.* By Samuel Angell, Author of the "Antiquities of Selinus." Pamph. 8vo, pp. 38. London, 1838.

Interesting at the present time from the recent calamitous fire, of which, an account is given at the end, abridged from the *Times* newspaper. In this account, one of the most interesting circumstances connected with the fire is altogether omitted; viz. that, while the flames were raging round the tower, the clock continued going, the chimes playing as usual at twelve, though a few minutes after the bells fell.

*Questions relating to Fires in general, the Draught of Smoke, and the Saving of Fuel, dedicated by Permission to Earl de Grey, President of the Institute of British Architects.* By F. A. Bernhardt, Architect, Honorary Member of the Polytechnic Society in Leipzig. Pamph. 8vo, 15 pages. London.

We have been favoured with a copy of this pamphlet, which, though not published, has been privately circulated. From it, and from another pamphlet of 20 pages, entitled *Certificates*, it would appear that M. Bernhardt has enjoyed considerable repute in Berlin, for improving the draughts of chimneys, and for warming and ventilating. The following is the last of these certificates:—

"At Dusseldorf on the Rhine, a technical construction has been achieved, which, as an invention peculiar in its kind, does much honour to the founder.

"The Royal General Post-Office had built, many years ago, a factory adjoining the post-house for the repair of the mail coaches; and, since the building of the diligences, and the increase of business, it has become a very large coach manufactory, in which about seventy workmen are at present daily employed. In a building at the back, arranged for that purpose, a forge for ten

fires was put up, and erected in the usual form. Smoke and soot penetrated into the dwellings of the neighbours, rendering them uninhabitable, and worth no rent. Complaints arose, and an expensive law-suit, which naturally terminated to the disadvantage of the Post-Office department. Experiments were then made to clarify the smoke, and separate the soot. The Prussian consul in England, that land of invention, was even desired to make enquiries whether any means were known to remedy the evil : but nothing could be done ; and the most learned professional men doubted the possibility of an invention to answer the purpose, because it was believed that any attempt to separate the smoke from the soot would only be made at the expense of the draught. It became a point of consequence to the Post-Office authorities here to satisfy the neighbours at any price, and they continued their endeavours to suppress the nuisance arising from the soot, by removing the smithy into another intermediate building constructed for the purpose, by experiments with such artists as were to be found, in inventing an apparatus by means of which it was hoped to banish the soot. A cistern of water was applied over the roof, which was intended, by being placed round the outlet for the smoke, to absorb its heavier parts ; but the soot soon covered the water with an incrustation, and the finer particles of the soot escaped from the chimney, and filled the gardens of the neighbours ; besides, the smoke spread itself through the smithies in a very dangerous and insupportable manner for the workmen at the fires. At that time, the architect, M. Bernhardt of Saxony, was in Berlin, and had been employed in the Royal Palaces, having devoted the whole of his life to the study of the deficiencies at present existing in the construction of fires. He was then occupied in correcting similar faults in the General Post-Office buildings. His plans were crowned with the best success, and gained him in particular the full confidence of His Excellency Baron Von Nagler, Minister and General Postmaster of the state, from whom M. Bernhardt received the honourable commission of visiting Dusseldorf on his way to Rotterdam, London, Paris, and Vienna, in order to report upon the embarrassing situation of its coach factory. The penetrating intelligence of His Excellency had found in him the right person. M. Bernhardt discovered the means of forcing the draught of the smoke, and separating the soot from it. His plans were carried into execution. *In a short time, without interruption of the coach factory, the work stands completely erected. The smoke ascends in a purified state through two cylinders of zinc on the roof, and the soot remains in the interior of the three story high building, concentrated in separate channels, and chambers for it.*

"It is remarkable to observe the soot depositing itself here in coarse qualities, and afterwards becoming finer as it ascends ; to see the smoke rising through narrow wire nets. In the channels of the five chimneys a mass of 26½ cubic feet of soot was found after three months' purifying, which had formerly been mostly conducted over the roof.

"We would willingly give a more detailed account of the whole arrangement, if the modest inventor, M. Bernhardt, had not reserved the doing so to himself at its proper time, in a lithographic representation. It is his secret and property. The whole is as simple as nature, from whom it has been copied. Air, fire, smoke, are respectively weighed in these premises : its physical rights are left to each, and the problem is solved. After the conversations we had with the technical artist, he displayed other knowledge and experience, equally important for the interest of mankind. He has not only the smoke entirely in his power, but he understands how to construct each kind of fire, and knows the great secret of economising fuel. The health of the inhabitants is a principal point he has in view. That which appears the most extraordinary in him, is the certainty and the self-confidence with which he acts without making trials. His theory, is the practice of remedying evils in all cases. His universal expedient is the air, which he understands how to measure out to fire. He examines the kitchens, rooms, fire-places, and stoves, where required ; the construction of the fires, the sloping of the chimneys, and the upper part of the

same over the roof. A remedy that is applicable in one case would be injurious in another. Fashion, in architecture, attempts sometimes to operate compulsatively on fires. The draught of fires is often too strong or too weak. Often the elements of nature, and architecture itself, and often the self-conceit of architects, tend to oppose that which is invented.

"M. Bernhardt's chief object in travelling is, to give proofs that his science is true and certain. He will bring to light the useful and the good, and, by the prosperity of the same, gain the confidence of authorities and the public.

"(Signed) CARL SCHAEFFER, Professor of Architecture."

*Weale's Scientific Advertiser.* Nos. I. and II., for January 20. and February 5., to be continued on the 5th and 20th of every Month, an Advertising Circular, on a new Plan, expressly designed for the Announcement of Publications connected with Architecture and the Fine Arts, Civil, Mechanical, and Military Engineering, Naval Architecture, and the various Branches of Mathematics and Natural Philosophy. This Advertiser will be printed in foolscap folio, and stamped; and circulated gratuitously by the General and Twopenny post.

In compliance with the suggestions of several of his connexions, and having himself long been sensible of the inconvenience felt by those whose occupations attached them to any of the above-named pursuits, owing to the want of some more direct mode of conveying or obtaining intelligence, than that afforded by the usual newspapers and periodicals, the editor (Mr. Weale, of the Architectural Library, Holborn), purposes to establish a Circular, that will, in the most efficient and direct mode, convey the information it professes to give to those individuals, free of all charge, who are chiefly interested in it, and who will thus of necessity have it brought under their notice.

*Observations on the Proposal of building at the Cross, and of shutting up the Royal Bank Close.* By P. Neill, LL.D., and W. Fraser. Pamph. 8vo, 11 pages.

*Suggestions for Warming and Ventilating Thirty-seven Cells, to be erected in the Salop Gaol, for the separate Confinement of Prisoners.* By T. N. Parker, Esq. Pamph. 8vo, 4 pages.

"I have already protested against gas, steam, and hot (or burnt) air, in regard to warming houses, or any other buildings, for human habitation; and I have endeavoured to recommend hot-water within metal pipes, as a safe and wholesome substitute. It is not fit that any one should be exposed to the choking effects of almost any kind of stove; and the columns of the newspapers abound with the details of accidents, from gas and steam, which never should be intrusted to inexperienced hands, whereby the commission of a mistake, or the omission of a duty, might at any time involve the most fatal consequences."

*Description of an Inkstand, upon a simple, cheap, and useful Plan,*

*in which the Supply of Ink adjusts itself by a Float, with Figures engraved on Wood.* Pamph. 8vo, 8 pages.

The plan is to have a float of cork swimming in the ink, and a guide to keep it always under the orifice into which the pen is inserted.

*Remarks on the Report of the Lord Provost's Committee, 19th July, 1837, relative to the Proposal of building at the Cross.* By P. Neill, Esq. Pamph. 8vo, 8 pages.

### MISCELLANEOUS INTELLIGENCE.

#### ART. I. Domestic Notices.

#### ENGLAND.

"*NEW Light*" in the *House of Commons*. — Last night, the House of Commons presented a novel and pleasing effect, from the peculiar mode in which it was lighted. Instead of being lighted with wax candles, as heretofore, in chandeliers, suspended along either side, which, from their position, were found inconveniently obstructive, and disagreeably dazzling in many parts of the house, the ingenious experiment was tried of producing a blaze of light, from a vast number of gas jets (we understand 3680 in number), displayed in six rows along the whole extent of the house, but behind the glazed ceiling which was recently erected, within the old roof of the *quondam* House of Lords. The ceiling being glazed with ground glass, gives a brightness to the light as it passes through it, which causes it to resemble daylight in an extraordinary degree; and the result, to those who have just passed from the darkness without doors, through the fiery glare of oil lamps along the lobbies, is one almost of enchantment. For the first second or so after entering, the change, perhaps, rather dims the sight than otherwise: but the eye very soon becomes at home in its new medium, and discerns that it is at once cooler, and more uniformly luminous, than that which it had been accustomed to within these walls. The immense body of flame which is required for this purpose, as may naturally be supposed, emits a considerable volume of heat; but this, from being confined to the upper part of the building, naturally tends to cool its general atmosphere, upon the well-known principle of pneumatics, by which theatres are cooled, by means of a furnace-like chandelier over the pit. On the whole, we consider the experiment of last night decidedly successful, and one which is capable of application, with a decided increase of comfort and health, to other buildings, besides the House of Commons. The expense, however, we understand to be rather great: some say as much as three pounds, others thirty shillings, an hour. (*Morn. Chron.*, Feb. 13. 1838.)

*Improvement of London*. — We are happy to observe, that Alderman Wood's committee is reappointed. We hope that, among numerous other points, the two following will be attended to: — 1. To render the street crossings more safe for persons on foot, and especially the aged, the infirm, and women carrying or having the care of children, by breaking up these crossings by lamps into spaces from 12 ft. to 20 ft. wide, always taking care that the number of spaces be equal, in order that the passage of carriages, either way, may be equal. 2. The laying down a line of flagstone, or asphaltic pavement, along the centre of the graveled footpaths, all round London, to the distance of ten or twelve miles from town. This last is, perhaps, not within the power of the committee; but, if they approved of it, they might recommend it. We fear, however, that Alderman Wood's object is rather splendid streets than safety for foot passengers. There are some others of the committee, however, from whom

we expect better things, and to them we would address ourselves as to the crossings. — *Contd.*

*City of London Literary and Scientific Institution, 165. Aldersgate Street.* — On the 20th of November, the first stone of a new library, and other offices belonging to the institution, was laid by Mr. John Reynolds, the senior member of the committee, who delivered an address on the occasion. The principal features of the buildings now erecting are as follows : —

The exterior of the building next Aldersgate Street is to be faced with white Suffolk brick ; and the cornices and dressings are to be in part executed with Bath stone, and in part with Roman cement. The entrance to the institution is through a doorway of good proportion, and of rather an original character. Above this is a stylobate, upon which rests the window of the committee-room, consisting of two Corinthian pilasters and columns, in entire relief, with entablature and archivolt over. The upper windows are of a plainer description, but by no means destitute of architectural embellishments. The façade is surmounted by a massive modillion cornice and blocking-course. The interior is arranged as follows : — On the basement story are, the porters' apartments, laboratory, and an *entrée* to the theatre, or lecture-room, with accommodations of a domestic nature. On the ground floor are, the porters' hall, principal hall and staircase, and various entries. The depth of the new building is about 75 ft. The one-pair story contains a library, 45 ft. long and 17 ft. high, lighted by skylights, introduced into the panels of ceiling ; a handsome committee-room, with *entrées* and lobbies to the other rooms and offices. The upper portion of the building is appropriated as a residence for the secretary. The reading-room intended to be made in the present building will be nearly 35 ft. square, and some of the class-rooms will be exceedingly spacious. The newspaper-room will be about 32 ft. by 20 ft. The lecture-room is to be heightened, and a gallery erected. The address was as follows : —

“ Fellow Members,

“ Time rolls on, empires rise and fall, but the mind of man still progresses towards maturity. Such, however, is the perfection of the Divine intellect, and so manifold are the resources of His power, that, notwithstanding every year teems with new discoveries, and every day adds fresh sources of enjoyment to those we already possess, even now we find ourselves only on the threshold of that state which the great Creator has destined us ultimately to attain. Shall we not, then, hail with pleasure, and embrace with delight, every opportunity, and every means that will enlarge our minds, elevate our thoughts, and expand our views concerning all things around us : for knowledge is to the mental, what light is to the material, world. Let us, then, rejoice my friends, that this day we have met to lay the first stone of a temple dedicated to literature and science, which, when complete, will offer increased advantages to their votaries ; a temple wherein worshippers of every denomination may meet, as it were, around one family altar, where all who “ learning love ” may join as in one common brotherhood. Among the nations of the earth, the tree of knowledge is still comparatively barren ; it has found, however, a congenial soil in this our favoured land ; and the long list of Britain's sons and daughters who have enrolled their immortal names on the pages of her history, proves that here, as elsewhere, the good seed, when properly nurtured, will always produce a rich and abundant harvest. Judging from the success of the past, we may venture to predict that, through future years, the City of London Literary and Scientific Institution will continue to be a blessing to the youth of this great metropolis, the *alma mater* to thousands yet unborn. It has been said that “ to the art of printing we owe our rank as a nation, the wonderful discoveries in science, and the blessed diffusion of religion ; ” but the preservation and continuance of these privileges must greatly depend on the increased intelligence of the people, arising from an extended and improved system of instruction. May the day, then, be not far distant when the blessings of a sound and liberal education shall be so widely spread, that to

refuse it to the humblest subject of these realms, will be considered as an insult to the whole community. To me, this is the proudest era of my life : the labours of the past are all rewarded in the pleasure of this moment ; and let us hope that our humble labours in the diffusion of knowledge will be crowned with that success we fondly anticipate, and which persevering exertion in a good cause must ultimately secure."

In the stone was deposited a bottle, containing a short account of the rise and progress of the institution ; the number of members (830) ; the number of volumes in the library, 7600 ; and a list of the President, Vice-Presidents, officers, and Committee of Management, written on vellum ; a copy of the laws, &c., a newspaper of the day, and a medallion of the Queen, struck in commemoration of her visit to the city. J. Blyth, Esq., Architect ; Mr. Griffiths, Builder. — *J. R. London, Dec. 1837.*

*The Reform Club-House.* — The Reform Club have set an example to all similar institutions who have it in their power to encourage competition in the fine arts. They have received designs and plans for a new club-house, from the most eminent architects, and hung them up in the committee-room for the inspection of members. A premium of 500*l.* was offered for the successful design ; and the committee, having given the preference to Mr. C. Barry's design, in the bold and massive style of Florentine architecture, called a general meeting of the club, for the purpose of finally deciding between that and the other designs. The meeting was very numerously attended, and confirmed the selection of the committee. The whole of the ground between the Travellers' and the open space facing the Carlton, is intended to be occupied by the new building, which will surpass in magnificence, if erected on the scale now planned, any edifice in London erected for similar purposes. (*Morn. Chron., Dec. 15.*)

*Improvements in the North-Western Part of London.* — Two new squares are now being formed on the west side of the Edgeware Road, on the large space of ground between the back of Oxford Terrace and Connaught Square. The one to the north of Burwood Place and St. John's Church is called *Cambridge Square* ; that to the south, *Oxford Square*. Another, to the west of these is also commenced, termed *Hyde Park Square* ; and the fine row of first-rate houses, named Hyde Park Gardens, on the Uxbridge Road, facing the Park, are nearly finished. The Park itself has been recently much improved, by the judicious substitution of an iron railing for the long dead wall which constituted its northern boundary, by the erection of the Victoria Lodge and gates, and by the formation of a broad gravel walk (with handsome and substantial iron guard-rail and posts) from Cumberland Gate to Kensington Gardens. — *G. B. W. London, Dec. 1. 1837.*

*A new Street* is projected from Westminster Abbey to Pimlico, by Mr. Bardwell. Other great changes are contemplated in that quarter, including the erection of a market. — *G. Dec. 2. 1837.*

*Safety of Bonds, Bills, &c.* — A large banking-house, which has recently been finished in the first style of architecture, consequent upon the improvements in the city, had an immense pit or well dug many feet below the surface, and made water-proof by substantial brickwork. The mouth of the pit opens in the floor of the bank parlour, but, during the hours of business, is effectually covered by the oaken floor. At the close of the day, and in the presence of the responsible parties, the bank books, bonds, bills, notes, security and specie, enclosed in proper receptacles, are placed on the trap over the orifice of the well, and, by the aid of ingeniously contrived machinery, the property is lowered to the bottom, a depth of about 40 ft., the trap-door is secured, and at the opening of the bank in the morning, the property is again raised to suit the purposes of the day. (*Morn. Chron., Jan. 13.*)

*Specimens of painted Glass.* — Those of your readers who are lovers of painted glass, I beg to refer to a specimen that may be seen at Brook's Glass repository, Strand, which is an admirable imitation of the window painted by Jervas, and designed by Sir J. Reynolds, in New College Chapel, Oxford. In



Russell the curiosity dealer's shop, King Street, Covent Garden, there is also a small painted window of the Crucifixion, which might form, in a larger one of the Gothic style, a very good centre piece, with a border. It was, no doubt, the work of an old master; but, as I could not learn whence it was taken, his name is unknown to me. — *Frederick Lush. Nov. 30. 1837.*

*Roe's Water-Closet, without the usual Apparatus*, which may be seen at the Gallery of Practical Science, Lowther Arcade, Strand, deserves notice, as showing how a water-closet may be placed at any distance whatever from the cistern. The construction is extremely simple; wires, cranks, box, valve, &c., being dispensed with, and the water being admitted to the basin simply by turning a cock under the seat. Of course, the force of the water, after the cock is turned, will be in proportion to the height of the head; and, if the pressure on the cock is very great, there may be some danger of its leakage. We shall be glad, however, to see this water-closet fairly tried. The inventor's address is Windmill Place, Camberwell Road.

CHESHIRE. — *New Church at Stayley Bridge.* — On Feb. 2., the corner stone of this church was laid by Lord Viscount Combermere. Stayley church has been commenced upon a plot of land containing not less than five acres, statute measure, which has been most generously given for the purpose by the Right Hon. the Earl of Stamford and Warrington. The land fronts the turnpike road from Stayley Bridge to Huddersfield; and the nature of the substrata is such as to render it admirably adapted for interments. It is most beautifully situated, with reference to the delightful scenery of the surrounding country, which will render the church a conspicuous and pleasing land-mark. The church will be a Gothic edifice, in that style of architecture which prevailed towards the close of the thirteenth century, as beautifully exemplified in the cathedrals of Salisbury, Lincoln, and York, and also in Beverley minster. The leading features of the design are, a lofty nave in the centre, lighted from clerestory windows; with ailes on the sides, lighted by coupled lancet windows between the buttresses. The tower is placed at the west end of the nave, and it is in four stories, or compartments, in height. In the first story is placed the west entrance to the church, which consists of a bold recessed doorway, 6 ft. wide, having moulded architraves round, and a hood mould over, terminating upon carved heads. In the second story of the west front is placed a two-light window, with elegant tracery and appropriate hood mould, terminating upon grotesque heads. The next story is formed by paneling for clock-dials on three sides of the tower. The last story is formed by two narrow lancet belfry windows, on each face of the tower, filled in with louvre slates, to keep out the weather, and to allow free egress for the sound of the bells. Each angle of the tower is flanked by double buttresses, in four stages, the two first terminating in double-weathered offsets, and the two last in weathered canopies. Above the latter rise four octagonal turrets, with shafts at their angles, supporting canopies over their faces; the whole surmounted by lofty pinnacles, terminating in appropriate finials, the highest part of which will be 88 ft. above the ground-line. The staircases to the galleries are placed on each side of the tower, and are lighted by lancet windows. The east end of the nave projects beyond the ends of the ailes, to form the chancel; the external angles being flanked with bold double buttresses, in one unbroken height, having large attached circular shafts at the angles, and terminating in large plain canopies; above these are placed two large octagonal turrets, having a rich corbel table round their upper parts, surmounted by lofty pinnacles, terminating in plain nob's as finials. The east end of the nave, or chancel, is pierced for a four-light window, formed of rich and elegant tracery, similar to a part of the window in the east end of Lincoln Cathedral, and having an appropriate hood mould over the same, terminating upon carved heads. The chancel is flanked by two small buildings, one of which forms the vestry or robing-room, and the other a porch to the east entrance to the church. The east front of these buildings is pierced with small coupled lancet windows, having hood moulds, stopping upon carved bosses

and the side fronts are pierced with doorways, having lancet heads and appropriate hood moulds. The sides of the aisles are divided by buttresses into five compartments, with double buttresses at the external angles; each buttress is in two stages, the first terminating in a weathered set-off, and the last in a weathered canopy. In each compartment are coupled lancet windows, with appropriate hood moulds, terminating upon grotesque heads. The upper part of the aisles finishes with a plain slope, as a cornice, over which rises the parapet, finishing with a moulded tablet or coping. The clerestory is divided into compartments by flat buttresses, ranging with those to the aisles; above which are a cornice and parapet, similar to what has been described to the aisles. The clerestory windows are in the form of spherical equilateral triangles, filled in with tracery. The authority for this description of window may be found in the upper part of the aisles to Westminster Abbey, and in the clerestory of Lichfield Cathedral, as well as in a few of our parochial churches in the west of England. The whole of the church is to be built of stone, of a very hard and lasting quality, faced with hammer-dressed walling, and having tooled ashler dressings to all the doors, windows, &c. The extreme length of the building will be 102. ft., and the width 57 ft. The principal approach to the interior is through a porch, in the base of the tower, which communicates by arched openings on each side with the staircase to the galleries, and directly through folding doors with the ground floor. The church is divided into nave and aisles; the latter being separated from the former by five arched compartments on each side, supported on solid octagonal stone piers, with moulded capitals, from which spring the solid stone arches that support the clerestory walls, which are pierced for a window over each compartment. The east end of the nave, as before noticed, is continued beyond the end of the aisles, to form the chancel, the floor of which is raised 2 ft. above the ground floor of the church. The west end of the nave is open, by a large archway, to the interior of the tower. The whole of the nave is to have a groined ceiling, with moulded ribs upon all the intersections of the vaulting, stopping upon moulded stone corbels affixed to the spandril walls of the arches. These are to be galleries in the aisles, and at the west end of the nave. The interior will contain sittings for one thousand and six persons, three hundred and sixty of which are free. The greater portion of the free sittings are in pews, and not in open skeleton seats, as is usually the case in the government churches. There is, also, ample room for an organ of adequate size, without diminishing the number of sittings. The pulpit, reading and clerk's desks, are designed in strict accordance with the architecture of the church. The tower will hold a peal of bells, and there is ample room for a clock. There is, also, provision made for warming the building with hot water. It is expected that the church will be completed, and ready for the celebration of divine service, by March, 1839. The total cost of the building, including architect's commission, &c., will be about 4100*l.* The cost of its erection will be defrayed by subscription, and it is to be built under the act of parliament passed in the first and second years of William IV. The architect is Mr. R. Tattersall of Fountain Street, Manchester. (*Manchester Times*, Feb. 10. 1838.)

**NORFOLK.**—*Norwich.* I have been so much engaged of late about the new poor houses, in addition to my general business, that I have been literally employed night and day. As soon as I perceive a desire on the part of your readers to become acquainted with the details of these buildings, I shall hand you some plans, &c. At present, I fancy I see a manifest design in excluding them from your Magazine. We used to hear of them through Mr. Frederick Lush; but now that gentleman is silent. Let the profession think as they please: there are some members of it, who are eminent, who have gone great lengths to obtain them in competition. They afford some experience, in many points, applicable to higher classes of buildings; and I do not hesitate to assert, that he who has erected several poor houses is a better judge of the best method of adapting buildings to their site, of effect in

the mass or *tout ensemble*, of domestic and economical arrangements, and of warming and ventilating, than half the architects in the kingdom; and I am sure that you will be personally gratified when you find that many of your ideas for the amelioration of mankind are embodied in these structures; which, of course, is advancing those ideas a step towards consummation. — *William Thorold. Dec. 8. 1837.*

WARWICKSHIRE. — *Stratford upon Avon Church.* — Every thing connected with the peaceful mausoleum of Shakspeare is interesting: but we feel doubly annoyed when our pleasurable thoughts are interrupted with other objects. I trust these few words will not be construed in any other sense than that of good feeling, as the object of pointing out defects should be the assistance it would give in creating works of a better and more skilful kind than any that have hitherto been erected, rather than that of censure to the architect of any particular building.

It is exceedingly gratifying to find that persons have come forward so liberally as to allow of erecting a new oak roof to this building, and that no expense has been spared to render it perfectly in character with the rest of the architecture; but, as I have been informed there is very little authority for the present design, the defects, which I am about to mention should not have appeared. In the first instance, the form of the roof is decidedly weak; the tie-beam, connected nearly to the middle of the principal rafter, is liable to cause that timber to collapse, which will then give considerable leverage to the corbel-piece below, and therefore, tend to thrust the walls out. The chancel should have been spanned with one tie-beam; and the principal rafters should have shown evidently their connexion with it; in fact, the roof should have been trussed: at present, its principle is more like that of an arch, depending upon the side walls for abutments; this appears more striking from the principal rafters being of much larger scantling than the tie-beam, which latter has all the appearance of being part only of a light framing, conveying little idea of strength. These defects in construction tend to show the deficiency of harmony in design; I have no doubt that the object of the architect was to raise the tie-beam above the label moulding of the east window, so that it might not be injured in effect by a continued tie-beam running over it; a difficulty which he would have been excused in obviating by raising the roof somewhat higher. The horizontal corbel-beams, the perpendicular queen-posts (if that term can be applied to them), and the tie-beam, bear no affinity to the principal rafters and the curved lines of the corbel-piece; and, together, they form so much *unconnected* variety, that the design is very much injured in effect. This is, however, caused more immediately by the want of connexion in the horizontal beams; for, if there had been but one horizontal line, and that the tie-beam, to contrast with the inclined rafters and the curved corbel-pieces, had been placed to add to the strength of the roof, and to give the appearance of uniting with the walls, the effect would have been good, because the mind would have been satisfied; but, as it is now, even the curved lines of the east window become disagreeable, as the union with the curve of the corbel-piece is broken by the abrupt angles in the roof. In other respects, the work appears to be well done: perhaps the stone corbels may come in for a little objection, as there appears to be a deficiency of moulding, which renders them meagre when compared with the rich moulded work in connexion with them. Whether these are the ancient or modern corbels, I know not: the deficiency in either would be equally obvious. To the professional eye these defects are sufficiently apparent; but they ought not to detract from the general merit of the work, conspicuous in other parts, and more particularly from the noble spirit of those individuals who have evinced so much good feeling in commemorating the immortal poet by the preservation of a lasting memorial, which will ever elicit honour to them from the world, and an individual gratification to themselves, only to terminate with their lives. — *B. London, Dec. 1837.*

[A very beautiful engraving of the chancel of Stratford church, as it is now restored, has just been published by Mr. Britton.—*Cond.*]

## ART. II. Retrospective Criticism.

**ERRATUM.**—In my article, p. 55., I find the words *Norman* bard are inserted instead of *Roman* bard, which makes nonsense. In comparing the disadvantages of building in an extinct style of architecture with writing in a dead language, I allude to the scholiasts of the fourteenth and fifteenth centuries, and more particularly to Trissino, who wrote a *Latin poem* (a very perfect thing in its way), which the schoolmen of the day had the temerity to compare with Virgil; but which is now generally allowed to be inferior, as I say, to the lay of the meanest *Roman* bard who sung in his mother tongue; that is, the *real* Latin. You see the absurdity which the word *Norman* makes of the whole comparison. What I meant to say, in short, was, that the most elaborate attempts with the Latin, as a dead language, could never reach its simplest efforts as a living one; and, in the same way, that Gothic architecture, as a *resuscitated* style, could never enjoy the same advantages which regulated its development during the period of its *natural* existence.—*H. N. Humphreys. London, February, 1838.*

**Another Word on Parsey's Doctrine of Perspective.** (p. 91.)—I am not quite annihilated, notwithstanding that Mr. Parsey and his allies have poured down upon me in such formidable force. Annihilated! not even discomfited: rather ought I to feel flattered at the notice bestowed upon me, and not a little grateful both to the Ass. of Inst. Brit. Arch. (as he is pleased to style himself), and to Kata Phusin, whose attack upon me is a mere feint; for, while they pretend to come to his aid, to support his cause and fight under his banners, it is Mr. Parsey himself whom they have completely upset. It is true they both make some show of opposition to me; yet more, it would seem, for the sake of letting it be seen that they can prove by demonstration the principle about which Mr. Parsey makes so much noise to be perfectly correct, than with any intention of refuting me; since they voluntarily admit all that I contend for; namely, that the practical application of such principle would be preposterous and absurd.

If it was chiefly for my own private information they took so much pains to show that the system to which I am opposed is theoretically correct, I believe they might have spared themselves their trouble; for I never disputed that, but was fully aware of the law according to which objects appear to diminish in proportion to their distances from the eye. This I thought might very well be taken for granted when I remarked that, if "perpendiculars" be made to converge, horizontal lines, parallel also to the picture, should be made to do the same. Mr. Parsey himself, it is true, disclaims this as an absurdity, which makes no part of his system. I am sorry for it, because if so, his system is all the more absurd, being at variance with itself, and without the merit of even consistency. Surely, he cannot be ignorant that, in regard to perspective appearance, it matters not which lines are to represent horizontal, and which vertical, ones. Suppose, for instance, I begin an interior, and draw the five planes representing the three sides of the room (one of them parallel to the picture), the floor, and ceiling. Now, it would make no difference, were I, before proceeding further, to make one of the sides of the picture its base; by which means the ceiling and floor would become walls, and what, in the first instance, were intended for vertical lines would become horizontal ones, and *vice versa*. Lest this should not be considered sufficiently clear, I will help myself to further illustration from one of Kata Phusin's diagrams; namely, fig. 37. at p. 96., which will answer my purposes; for, if we reverse this, so that *b d* be considered the base, and *b c, e d*, to represent the front of a building, *b c* and *d e* become perpendiculars, and measures, not of breadth, but of height. We will further suppose that the eye is directly opposite the line *b c*, consequently, that it is nearer to it than to the line *d e*, which, as, according to the rectified Parseyan system, it would be narrower if representing a horizontal line, ought here to be shorter; and the lines *b d* and *e c*, instead of

being parallel to each other and to the base of the picture, would converge to some point on the horizon.

As Kata Phusin has shown it, for the goodnatured purpose of perfectly convincing me of the truth of his reasoning, the object is not parallel to the plane of the eye, or, in other words, perpendicular to the horizontal ray of vision *a d*; consequently is not shown it as it could be represented in any picture, where the spectator is supposed to be looking forward, and not upwards as is here the case; and, therefore, his diagram does not at all apply to my remarks. So much pains has been taken to set me right, that I suspect I have been misunderstood. In denying the convergence of vertical lines, all I meant was, that it is not perceptible, and, therefore, does not require to be attended to in drawing. Mr. Pocock tells me that I might satisfy myself, as they do, by making use of a sextant, or even a common foot-rule. Undoubtedly; yet people generally trust to their own eyes, and not to sextants, on such occasions; at least, such is the fashion in England, whatever it may be in Laputa. So, also, is there always some degree of animal heat in the body: nobody, however, save a Laputan philosopher, will assert that, such being the case, we ought never to say we are cold.

To what, after all, I ask, do such over-refined hair-splitting distinctions amount? — of what practical value are they? Let Mr. Pocock and Kata Phusin reply for me; and the answer of both is, None; they perfectly agreeing with me, that, notwithstanding the doctrine of the convergence of perpendiculars is speculatively right, it ought to have no influence upon practice, where it would be altogether useless, if not decidedly wrong. Were Mr. Parsey to paint the Tower of Babel (and I really do not think he could hit upon a better subject for the illustration of his theory), then, I grant, he might be justified in making the summit visibly narrower than the lower part; yet, as there never was but one Tower of Babel, and as towers of sufficient altitude to call for the application of Mr. Parsey's theory to them are by no means very common, I am afraid he will not be greatly benefited by the discovery, which, it is evident from what he says, he himself rates very highly, but which even those who dissent from me do not hold to be a particularly valuable one, because they admit it to be quite useless, or worse than useless, in practice. Were I myself to express my own opinion of it unreservedly, most certainly I should not make amends for my former want of courtesy by the term I should apply to it. That I was in the first instance quite as courteous as the occasion called for, is my own opinion: my object was not to compliment Mr. Parsey or his system; nor did I care to make a show of great deference and respect for the former, while attacking the latter. Had I affected more courtesy, it would, perhaps, have been construed as sneering hypocrisy; therefore, no more excuse on that head. Happily, Mr. Parsey himself is less sensitive than his seconds are for him: he is too warmly wrapped up in the consciousness of having achieved a great and important discovery, to care much for what either myself or any one else may say to its disadvantage. I leave him, therefore, to the enjoyment of having brought forward a theory so ingenious and refined, that, as is admitted even by those who defend it, it is utterly useless in practice. Yet, if I am decidedly hostile to the species of reform in perspective which he is endeavouring to bring about, I freely admit that there is ample room for reform, not in theory, but in the practical application of perspective; and not least of all in regard to fixing the horizontal at the natural level of the eye, instead of placing it quite arbitrarily, as is frequently done, and as, I perceive, is the case in the cut given at p. 91., of the *Glyptotheca* at Munich, which, were it perfectly correct in every other respect, would in that be sufficiently erroneous; since it conveys the idea of a building not much more than double a person's height; whereas the height from the ground to the top of the pediment is 60 English feet. — *Candidus*. London, Feb. 1838.

[The engraving at p. 91. was not from a sketch by Mr. Humphreys; but was one that we had had engraved from the *Munich Guide* for the *Encyclopædia of Gardening*, some years since.]

\* *Dr. Ure's Report on M. Bernhard's System of Warming and Ventilating.* (p. 31.)—Being at present very much occupied, I am prevented from replying in detail to the attack upon my new system of warming and ventilating, by Dr. Ure, published in the January Number of this Magazine. I beg to say, for the present, that I am executing a very important work; which, when finished, will, like Lord King's house itself, and other works, that for four years have been in operation, refute all the charges and misstatements made by him in his hasty report. I cannot avoid briefly noticing one chief point; which is, that Dr. Ure's examination of Lord King's residence took place in July, when the temperature of the atmosphere was  $72^{\circ}$ ; and when the fires were kept up day and night, expressly for drying the house, which was completely accomplished in about three weeks.—*F. A. Bernhard.* 92, York Road, Lambeth, Feb. 12. 1838.

### ART. III. Queries and Answers.

*MODE of securing Water-Pipes against Frost.*—If you will peruse the following paragraphs, you will the better be able to understand my questions appended to them.

"During the late frost, almost every family in England has suffered from an evil which might have been very nearly, if not entirely, prevented by a very simple precaution, and at very inconsiderable cost: I refer to the freezing of water in pipes. On the return of mild weather, the pipes, in most cases, have burst, and great injury has been done to property and health.

If the water-pipes had been enclosed in pipes, or cases, and surrounded 2 in., or even 1 in., by sawdust, coal-ashes, or, better still, powdered charcoal (which is one of the best non-conductors we know), the water in the pipes would have retained its temperature, and the inconvenience complained of could not have taken place. There would, also, be this additional advantage, that, in summer, the water would not be (as most of the London water is) tepid, when drawn from the pipe. I have been greatly surprised to find that, in houses built with the utmost care, at a very great expense, and by the most eminent architects, such an obvious and simple preventive against so general and serious an evil should have been so generally overlooked." (*Morning Chronicle*, Feb. 15.)

"It is a pity that the author of the above paragraph has not given his name and address, or the name and address of some competent person, to whom one could apply for advice in matters of this kind. I have great doubts if 1 in., or even 2 in., of powdered charcoal would keep out the frost, when the surrounding temperature is at zero of Fahrenheit, or even lower; but, perhaps, there is some positive evidence on this subject, which, if one knew where to find, might, perhaps, be satisfactory to them. The mode of emptying the pipes, immediately after the water has been supplied, is, I believe, the most general about London; but this is of no use in very severe frosts, because the water freezes the moment it is turned on. Charcoal, or deeply burying the pipes in the earth, is, doubtless, better; because, if the receiving cistern should be out of the reach of frost, a supply may be received regularly during the most severe weather. But how is the receiving cistern to be kept from frost. In the house which I occupy there is one large cistern in the area, surrounded by 9-in. brick walls, the water in which has been one solid lump of ice for the last six weeks. There is a wooden cistern, enclosed in a house, the water of which is also one solid lump of ice. There are two cisterns, for water-closets, under shed roofs, similarly frozen; and there is a cistern to a water-closet within the house, on the first floor, similarly circumstanced. Thus, in a house for which 5*l.* a year is paid to a water company for ordinary and high service, not a drop of water has been delivered to the house for the last six weeks; and the only means for procuring a supply for daily use have been the plugs in the street. The idea of a fire breaking out under such circumstances



is dreadful. No fault is to be found with the water companies; but there is obviously something very defective in the builders' arrangements. Surely, this kind of improvement would be well worth a premium by the Institute of British Architects, at least, as much so as the restoration of Greek temples. I should wish to know how we are to be certain of having an abundant supply of water to a street house in winters like the present. Perhaps some of your readers can state how the supply is obtained in cold countries. It is surely time that the art of supplying water to houses, from main pipes laid in the streets, were reduced to a regular and secure system. I wish some German architect, M. Bernhardt, for example, would inform us how water is supplied to the houses in Germany in the winter season. I should, also, be glad to know what is to be done in the case of fire, when no water is obtained. I have thought of powdered ice or snow, if there happened to be any on the ground. But how is it to be thrown on the fire? with shovels; or should it be made up into balls or fragments, and thrown, by hand, in at the windows or on the roof? There is great want of information on the subject of extinguishing fires, as well as on that of supplying water; and I hope scientific builders and plumbers will turn their attention to the subject, and favour the public, through your pages, with their advice and experience. — *T. W. S. Brompton, Feb. 16. 1838.*

*Fire-proof Safes.* — In consequence of the fire at the Royal Exchange, and at other places, this winter, some experience must have resulted as to the comparative value of different kinds of safes. Which, then, after all, is the best? Is Chubb's as good as it would appear to be from the following advertisement? —

*"Chubb's Patent Fire-proof Safes.*

*"Saw-Mills, Grosvenor Basin, Pimlico, Jan. 25. 1836.*

"We certify that these papers were enclosed in Chubb's patent fire-proof box, and exposed in the furnace of a steam-engine of twenty-two horse power, by which the box became red-hot in three minutes, and remained in the furnace in that state for a considerable time, and were taken out in our presence, perfectly uninjured."

*"R. R. Arnz.*

*"E. W. Lower.*

*"R. Goodman, Engineer." (Morn Chron., Jan. 13. 1837.)*

I am informed that a banking-house in Lombard Street has a well, 40 ft. deep, as a safe. Is this fact? and, if so, can any of your readers give any account of it? — *Henry B. White. Chelmsford, Feb. 10. 1838.*

*Filtration.* — A committee appointed by the French Academy of Sciences have examined into the merits of the apparatus invented by M. de Fonvielle, for the filtration of water, and which has been in constant use at the Hôtel Dieu for eight months. The committee give it their full approbation; and the principles on which it acts are those of high pressure, combined with two opposing currents, put in daily motion by means of taps and pipes, for the purposes of cleansing and preventing all adhesion of earthy and impure matter. (*Athenæum*, Dec. 9.) Can any of your readers explain to me the precise meaning of the above paragraph; or, in other words, explain the mode of filtering referred to. — *James Simpson. 24. Great George Street, Edinburgh.*

#### ART. IV. *Institute of British Architects.*

*Dec. 15. 1837.* — P. F. Robinson, V. P., in the Chair.

*Elected.* F. H. Groves, London; S. S. T. Carlow, Kennington; and W. A. Buckley, Bayswater; as associates.

*Presented.* Catalogue of Medals struck in France and its Dependencies, 8vo. Hood on Warming by Hot Water, 1 vol. 8vo. Campanari's Essay on Etrurian Vases. Model of the Obelisk of Materialah, near Cairo, from M.

Bonomi. Bust of the late T. Harrison, Esq., Architect of Chester. Print of the Altar Window of St. Peter's Church, Hampton Lacey, Warwickshire. Schloss's List of the Meetings of the learned Societies of London. Specimens of Granite and Limestone used in Dublin.

*Papers read.* A paper on the Restoration of the Temple of Jupiter Olympius at Athens, by C. E. A. Blair, Esq. Architect. On the relative Strength of several Cast-iron Beams, when subjected to a transverse Strain; by C. Parker, Fellow.

*Exhibited.* The following Drawings sent in for the Soane Medallion. Two Restorations of the Abbey of St. Mary, York; Restoration of Kirkstall Abbey, Yorkshire; Restoration of Llanthony Abbey, Monmouthshire.

Dec. 18. 1837. — P. F. Robison, V. P., in the Chair.

*Elected.* The Right Honourable Sir Robert Peel, Bart., as Honorary Fellow. M. Hubsch, Carlsruhe; M. De Salucci, Stuttgart; M. Ohlmüller, Munich; M. Lavess, Hanover; M. De Lassaulx, Coblenz; M. Förster, Vienna; M. De Nabile, Vienna; M. Bourla, Antwerp; and M. Louis Serure; as Honorary and Corresponding Members.

*Read.* Part II. of Mr. Blore's History of the English School of Gothic Architecture. A paper on Architectural Notation, with the Proposition of a Uniform System for general Adoption; by T. L. Donaldson. A Description of Wellerstedt's newly invented Metal for covering Roofs. A Description of Roe's Water-closet.

*Presented.* Palladio, translated into French by Leone, 2 vols. folio; Rutter's Description of Fonthill Abbey; and various French pamphlets.

Jan. 29. 1838. — Earl de Grey, President, in the Chair.

*Elected.* C. J. Richardson, Architect, London, as Fellow; G. B. Webb, London, and C. Henman, London, as Associates.

*Presented.* Seven original Drawings, by Bibiena and others, from Sir J. D. Stewart. An ancient Roman Roof-tile, from G. Saunders, Esq. Tredgold on Warning and Ventilation, 3d edition, 1 vol. 8vo. Britton's History of Cassiobury, 1 vol. folio. Original Drawings, by Hardwick and Adam. Transactions of the Geological Society for 1837 and 50% from G. B. Greenhough, Esq.

*Read.* A Communication from H. E. Goodridge, Esq., "On the Ruins of a Roman Villa, recently discovered at Newton, near Bath." Part of an Essay, sent in for the Institute Medal, "On the Excellence which distinguishes the ancient Athenian Architecture, and on the Principles of Art and Science by which they were obtained, with regard to Design, Proportion, Light and Shade, Colour, Construction, and Adaptation to Purpose, to Situation, and to the Materials employed."

*Exhibited.* Mr. Joyce, of Camberwell, gardener, attended with one of his newly invented stoves, and explained its general uses, and applicability to various purposes. A Portrait of Her Majesty, by E. A. Challon, Esq., R.A.

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#### ART. V. Obituary.

*DIED* at Berlin, June 29., *Aloysius Hirt*, the eminent antiquary and professor of archæology, known to the learned world by his various treatises on architectural subjects; such as the *Temple of Diana at Ephesus*, *Solomon's Temple*, *The Pantheon at Rome*, &c.; especially by his treatise on the architecture of the ancients, entitled, *Die Baukunst nach den Grundsätzen der Alten*, folio, 1809, with 50 plates; a work of very superior merit, and no ordinary ability. Latterly, he was much occupied in the arrangement of the collection in the Museum at Berlin. He was born at Donaueschingen, in Suabia, in 1759, and was therefore about 78 years old; yet, notwithstanding his advanced age, retained not only his faculties, but his cheerfulness and activity of mind, almost to the very last.

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